

AP - 111

**N. DRAINAGE
DITCH (2)**

2019



May 13, 2019

Mr. John E. Kieling, Chief
New Mexico Environmental Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6303

RE: Response to Disapproval
Investigation Report for North Drainage Ditch and OW-29 & OW-30 Areas
Marathon Petroleum Company LP, Gallup Refinery
(dba Western Refining Southwest Inc.)
EPA ID# NMD000333211
HWB-WRG-18-008

Dear Mr. Kieling:

Gallup Refinery is submitting the enclosed responses to your comments dated February 8, 2019 on the referenced Investigation Report. The Investigation Report has been revised per your comments and enclosed for your review. If there are any questions, please call John Moore at 505-722-0205.

Certification

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

Sincerely,
Marathon Petroleum Company LP

Robert S. Hanks
Refining General Manager

Enclosure

cc K. Van Horn NMED
C. Chavez NMOCD
L. King EPA Region VI
B. Moore Marathon Gallup Refinery

RESPONSE TO COMMENTS

February 8, 2019 Comments on North Drainage Ditch Investigation Report (August 2018)

NMED Comment 1

The Permittee received NMED's Approval with Modifications for the Investigation Work Plan OW-29 & OW-30 and North Drainage Ditch Areas on February 23, 2016 and conducted the field work from May 23, 2016 through June 1, 2016. The Permittee did not submit the Investigation Report until August 2018 over two years after field work was conducted. NMED did not establish a submittal date for the investigation report in the approval of the investigation work plan so that the Permittee submits investigation results in a timely manner and move forward with additional phases of investigation, as necessary. NMED will correct this oversight in future approvals.

Gallup Response: None required.

NMED Comment 2

While not a written requirement, in the past when the Permittee submitted the electronic version of documents, the Permittee separated out the text of the report, figures, tables, laboratory report and other appendices as distinct files. This Report was submitted as a single file on the disc. It facilitates NMED's review to have distinct files. NMED requests the Permittee returns to this practice.

Gallup Response: The files were initially submitted separately due to file size limitations while uploading the submittals to OCD's ftp site. When no longer required to upload to OCD's website, we provided a single file thinking this would be preferred for file retention purposes vs many separate files. We will revert back to the submission of separate files as requested.

NMED Comment 3

The Permittee did not collect soil samples for laboratory analysis from several borings where field observations (visual, olfactory and headspace vapor screening) indicated the presence of contamination was not observed. The Work Plan in Section 4.1.1 (Soil Sample Field Screening and Logging) stated that discrete soil samples would be retained for laboratory analyses "0'-0.5' (at all soil borings); 1.5'-2.0' (at all soil borings); >2.0' (from the interval in each soil boring with the greatest apparent degree of contamination, based on field observations and field screening); [f]rom the bottom of each borehole (all soil borings); [f]rom the 6" interval at the top of saturation (applicable only to borings that reach saturation); and [a]ny additional intervals as determined based on field screening results." However, no soil samples were collected from borings NDD-1, NDD-2, NDD-3, OW-53, and OW-56. Additionally, the Permittee collected only one sample at OW-54 from the 14 to 16 ft bgs interval (immediately above the saturated interval) and one sample at OW-55 from the 16 to 19 ft bgs interval (immediately above the saturated interval). This practice does not adequately characterize the subsurface. Lack of soil sample collection for laboratory analysis fails to collect data that is essential in determining the extent of impacts. The Permittee did not characterize the soil impacts adequately during this investigation. While field observations are an important part of investigation work, often the field observations do not represent the full picture regarding contaminant impacts. In addition, the Permittee did not implement the approved Work Plan, which constitutes noncompliance with RCRA Permit Section I.J.11 (Approval of Work Plans and Other Documents).

Gallup Response: It is clearly Gallup's intent to be compliant with the RCRA Permit and Work Plans prepared pursuant to the Permit and NMED's approvals of such plans. While field conditions may arise that can affect implementation of approved plans for sample collection, we believe we were compliant with the conditions referenced above and explain our position as follows.

First, we'll address the lack of collection of soil samples at soil borings NDD-1, NDD-2, and NDD-3. These three soil borings were installed in May 2015, before the August 2015 Investigation Work Plan was prepared, thus they were not installed pursuant to the Investigation Work Plan. These borings were completed "at risk" as a voluntary measure by Gallup to address the observations of potential hydrocarbon impacts in the North Drainage Ditch as reported to both NMED and OCD on April 22, 2015. This was explained in Section 2.1 of the Investigation Work, an excerpt of which is provided below.

Water was recently observed in the ditch again with potential hydrocarbon impacts and notification was provided to the NMED and NMOCD on April 22, 2015. Three surface water samples were collected from locations A-1, B-1, and C-1 on March 19, 2015 (Figure 3). The water samples were analyzed for BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, MTBE, TPH, and RCRA metals. The results are summarized in Table 1 and the laboratory report is provided in Appendix A. Benzene, xylenes, MTBE, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, arsenic, and barium were detected at concentrations above screening levels (NMED, 2014).

After the standing water in the ditch was removed with a vacuum truck, an additional water sample was collected from the ditch on April 23, 2015 and analyzed for VOCs (sample ID North Drainage Ditch). The detected results are summarized in Table 1 and the laboratory report is provided in Appendix A. Benzene, xylenes, 1,2,4-trimethylbenzene, and naphthalene were detected at concentrations above screening levels.

Based on the detections in the surface water samples collected in March 2015, three soil borings (NDD-1, NDD-2, and NDD-3) were completed in the area on May 11, 2015. Borings NDD-1 and NDD-2 were drilled to the top of bedrock but did not encounter saturation. Boring NDD-3 did encounter saturation and a groundwater sample was collected from a temporary well completion on May 14, 2015 and analyzed for VOCs, SVOCs, and TPH.

Next, we'll address monitoring wells OW-53, OW-54, OW-55, and OW-56. The purpose of the investigation was set out in Section 1 of the Investigation Work Plan, as shown in excerpt shown below.

The general purpose of the site investigation is to determine and evaluate the presence, nature, and extent of releases of contaminants in accordance with 20.4.1.500 New Mexico Administrative Code (NMAC) incorporating 40 Code of Federal Regulations (CFR) Section 264.101. The investigation activities will be conducted in accordance with Section IV.H.5 of the Post-Closure Care Permit and will focus on completing the delineation of impacts to soils and groundwater in the area of the North Drainage Ditch and delineation of groundwater impacts down-gradient of wells OW-14, OW-29 and OW-30.

This is further reflected in the opening paragraph of Section 4 (Scope of Services) of the Investigation Work Plan, as shown below.

The site investigation of groundwater will be conducted to define the lateral extent of observed impacts in monitoring wells OW-29 and OW-30 and in the area of the North Drainage Ditch. The site investigation of soils will be focused in the area of the North Drainage Ditch. The investigation will commence upon approval of this investigation work plan by NMED.

As established in both of these Sections in the Investigation Work Plan, there were separate objectives for the North Drainage Ditch Area and the area down-gradient of OW-29 and OW-30. In fact, NMED originally requested separate work plans for these areas, but Gallup believed due to the relatively short distance between areas and likely single field mobilization that a single Investigation Work Plan would be appropriate. In hind sight, possible separate Investigation Work Plans may have prevented the apparent confusion of the objectives for the two separate areas. Nonetheless, continuing through the Investigation Work Plan we see the following requirements.

NMED refers to Section 4.1.1 and notes the requirements for collection of soil samples. This is shown below. You will please note this is specific to the North Drainage Ditch and not wells OW-53, OW-54, OW-55, and OW-56 that were drilled to the east and down-gradient of wells OW-29 and OW-30.

Discrete soil samples will be retained for laboratory analyses from within the following intervals at sampling locations in the North Drainage Ditch Area:

- 0'-0.5' (at all soil borings);
- 1.5'-2.0' (at all soil borings);
- > 2.0' (from the interval in each soil boring with the greatest apparent degree of contamination, based on field observations and field screening);
- From the bottom of each borehole (all soil borings);
- From the 6" interval at the top of saturation (applicable only to borings that reach saturation); and
- Any additional intervals as determined based on field screening results.

Based on the above explanation, we do not believe the approved Investigation Work Plan called for collection of soil samples at wells OW-53, OW-54, OW-55, and OW-56. We have recently received comments from NMED on other submittals requesting that soil samples be collected even when the focus of the boring is to install a monitoring well for purposes of lateral delineation of a known plume. However, this was not Gallup's understanding in 2015 and the Investigation Work Plan was intentionally prepared not to require soil samples for the permanent monitoring wells drilled to the east of the North Drainage Ditch. Although not a requirement of the Investigation Work Plan, two soil samples were collected at monitoring wells OW-54 and OW-55 as noted by NMED.

NMED Comment 4

In Executive Summary, page E-ii, the Permittee states, "[e]leven organic constituents (1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, benzene, ethylbenzene, MTBE, naphthalene, toluene, and xylenes) were detected at concentrations above screening levels in at least one of the seven groundwater samples collected from the temporary well completions or permanent well completions." According to Table 8, *Groundwater Analytical Results Summary*, the concentration of bis(2-ethylhexyl) phthalate also exceeded the screening level in the groundwater sample collected from well OW-55. In addition, the concentrations of total petroleum hydrocarbon (TPH) gasoline and diesel range organics (DRO) exceed the screening levels in the groundwater samples collected from most of the groundwater monitoring wells. Revise the Report accordingly.

Gallup Response: The discussion on page E-ii has been revised to note that twelve organic constituents, including bis(2-ethylhexyl) phthalate, were detected at concentrations above screening levels. An additional sentence has been added to discuss exceedances for TPH in groundwater samples.

NMED Comment 5

In Section 2.1 (North Drainage Ditch), page 2-1, the Permittee states, "[t]he area designated as the North Drainage Ditch is actually part of a larger drainage feature that begins on the north side of the tank farm, extends north along the western boundary of Solid Waste Management Unit (SWMU) 9 - Drainage Ditch and Inactive Landfarm, and passes beneath a dirt road, where it bifurcates (Figure 2)." The Permittee later states, "[t]here is no record of waste or other contaminants being handled in the proposed area of investigation, nor is there a record of site operations in this area." While the drainage ditch may not have purposefully been used as an area to manage waste, it represents a migratory pathway for contaminants related to the refinery operations to move through the environment. While it seems that water entering the ditch is likely groundwater seeping into the ditch, the ditch is still a migration pathway. Revise the description to provide a more accurate description of the ditch and describe whether it is a natural or manmade feature or a combination of both. In addition, SWMU 9 (Drainage Ditch and Inactive Landfarm) and the locations of the dirt road where the ditch bifurcates are not depicted on Figure 2 (Investigation Area). It is not clear whether the ditch continues after passing the dirt road. Point out these features in a figure and clarify the pathway and extent of the ditch in the revised Report. The "larger drainage feature" extending from the north side of the tank farm in relation to the North Drainage Ditch must be presented in Figure 2 or a separate figure, if appropriate.

Gallup Response: During recent preparation of the Investigation Work Plan SWMU 9 – Drainage Ditch and Inactive Landfarm, the original survey plat for SWMU 9 was located. Based on this plat, the main drainage ditch that was previously discussed on page 2-1 is further west of SWMU 9 than originally believed. This does not materially change the investigation of the North Drainage Ditch, as surface flow from SWMU 9 could still reach the North Drainage Ditch. Figures 2 and 5 have been revised to show the location of SWMU 9 based on the plat and the description of the ditch has been revised based on this information and to add the requested information above in regards to construction of the ditch and the potential for transport of contaminants. The text has been revised to also reference Figure 5, which is a topographic map that was included in the report and shows the land surface elevation and drainage features. The topographic map shows the drainage features more clearly than the aerial photo of Figure 2. You will find enclosed a copy of the survey plat for SWMU 9 that shows its location relative to well OW-

14, which is over 300 feet east of the main drainage ditch that originates on the north side of the tank farm, just west of the bullet tanks.

NMED Comment 6

The Permittee does not explicitly discuss whether the surface water present in the ditch is there year-round or if it is present intermittently. In Section 2.1 (North Drainage Ditch), page 2-1, the Permittee discusses that the area was initially discovered in 2009 and the "[t]he potentially affected portion of the ditch was estimated to be 40 feet long with water depths of a few inches and up to one foot in width." At the end of the paragraph on page 2-2, the Permittee states, "[based on the fact that the water appeared to be ephemeral in nature and there were very few detections of only low concentrations of chemical constituents in surface soils no further action was taken at the time." In 2015 the facility indicated that water in the ditch was more than ephemeral because cattails and grasses were present in the ditch. On page 2-2, the Permittee indicates that standing water was vacuumed from the ditch, but that another surface water sample was also collected after the water was removed. The time between removing the standing water and collection of the North Drainage Ditch surface water sample on April 23, 2015 is not clear.

Understanding recharge rates of water entering the ditch may help assess contaminant migration. Provide information regarding whether water is consistently present in the ditch and the time spans between removal of the water and the return of water in the ditch.

Gallup Response: During the time period of the initial discovery in 2009, the water in the ditch was ephemeral in nature. Although it is not checked often, we believe it continued to be ephemeral through 2016, as there was no standing water in the ditch during the May and June 2016 sampling event. Although it could possibly be described as intermittent under current conditions and the text on page 2-2 has been revised to reflect this.

The exact time between removal of the water from the ditch and sample collection in 2015 is not known. There is no currently available information to indicate water has been removed from the ditch since 2015. Section 2.1 has been revised to provide the additional information where available.

NMED Comment 7

In Section 2.2 (OW-29 and OW-30 Area), page 2-3, the Permittee states, "[p]otential sources are the tanks and ancillary equipment in the refinery tank farm." The Permittee discusses that the Tank Farm (SWMU 6) is the likely source of the contaminants in the ditch. Provide a figure that depicts the Tank Farm and labels the tanks and identifies the tank(s) that could be potential sources of the TPH and MTBE contamination in the revised Report. Provide a discussion regarding general tank maintenance as well.

Gallup Response: The discussion in Section 2.2 notes that MTBE was stored in the tank farm and thus the tank farm is a likely source of the contaminants observed in groundwater samples collected from OW-29 and OW-30. There is no reference to the ditch in Section 2.2. Although including other contaminants, MTBE has been detected at some of the highest concentrations in groundwater samples collected from OW-29 and OW-30. A figure has been added in a new Appendix (Appendix J Tank Farm Information) that shows the tank numbers, with Tank 568 identified as being previously used to store MTBE. Of course, any of the tanks that have been used to store petroleum hydrocarbons could be a "potential sources of the TPH" and thus are not called out individually on the new figure. A discussion on general tank maintenance/inspections has been added to Section 2.2. We refer you to the Investigation Report for the OW-14 Source Area for more information on the tank farm, as that report is more clearly focused on the source of the observed down-gradient impacts (e.g., the tank farm) while this report is focused on

delineating the potential down-gradient impacts to groundwater beyond OW-14, OW-29 and OW-30, as was requested by NMED. The presentation of information in multiple investigation reports for areas that all appear to be impacted from releases within the tank farm is not particularly beneficial to the reviewer and possibly it would make more sense to eventually combine the OW-29 & OW-30 and North Drainage Ditch Investigation Report and the OW-14 Source Area Investigation into a single investigation report.

NMED Comment 8

In Section 4.2 (Subsurface Conditions), page 4-2, the Permittee states, "[o]ne underground pipeline was detected during clearance of utilities in the area north of the North Drainage Ditch." Provide information regarding the underground pipeline including the content conveyed in the line in the revised Report and provide a figure depicting the location of the pipeline in the revised Report.

Gallup Response: The subject pipelines convey crude oil and have been added to Figure 2. The discussion on page 4-2 has been revised accordingly.

NMED Comment 9

In Section 4.3.1 (North Drainage Ditch), page 4-6, regarding boring NDD-1, the Permittee states, "[t]he lithology encountered consisted of the following... Claystone (Chinle Group- Painted Desert Member): 14 feet bgl - 20 feet bgl (low plasticity, very stiff, damp to dry, reddish purple, no odor, trace grey)." Section 2.1 (North Drainage Ditch) states that the boring was drilled to the top of bedrock. The borings were advanced six feet into the bedrock (claystone), rather than to the top of bedrock. Therefore, the statement in Section 2.1 is contradictory. The same discrepancy is found in the description of drilling regarding other soil borings (e.g., NDD-2). Resolve the discrepancies in the revised Report.

Gallup Response: The discussion in Section 2.1 (page 2-2) has been revised.

NMED Comment 10

In Section 4.3.1 (North Drainage Ditch), page 4-7, regarding boring NDD-3, the Permittee states, "[t]he well was installed with the screened interval ranging from 5 feet bgl to 15 feet bgl. On May 14, 2015 the well was gauged, purged and a water sample collected. The well casing and screen were removed and the borehole was grouted." Clarify how the borehole was grouted in the revised Report.

Gallup Response: The discussion on page 4-7 has been revised to note boring NDD-3 was grouted to the land surface using a cement/bentonite mixture. As the same statement was made for borings NDD-1, NDD-2, NDD-4, NDD-6, NDD-11, and NDD-16 similar revisions are made for the related discussions on pages 4-6, 4-8, 4-9, 4-10, 4-12, and 4-15.

NMED Comment 11

In Section 4.3.1 (North Drainage Ditch), page 4-9, regarding boring NDD-5, the Permittee states, "[t]he lithology encountered consisted of silt from 0 to 2 feet bgl. This low plasticity silt was soft, damp and exhibited an odor at the base." The Permittee does not state the type of odor encountered; e.g., petroleum or organic odor. Also, provide the elevation difference between the ground level at the surface compared to the ground level within the ditch where the boring was installed in the description. Revise the Report to include the type of odor encountered and include a ground elevation for all borings installed within the ditch.

Gallup Response: The discussion on page 4-9 has been revised to note there was an odor, but it was not a petroleum odor or otherwise recognizable. The ditch is approximately one foot deep where NDD-5 was completed in the ditch. Additional surveys were completed and the surveyed locations and land surface elevation of the soil borings have been added to the boring logs in Appendix G.

NMED Comment 12

In Section 4.3.1 (North Drainage Ditch), page 4-9, regarding boring NDD-6, the Permittee installed one hand auger boring within the ditch starting at the surface within the ditch and then moved outside the ditch and installed another boring, designating both borings with the same name as the boring in the ditch and collected samples starting at four feet below the ground surface (ft bgs). Then, the Permittee describes the lithology encountered, but it is not clear if the lithology described is from the boring within the ditch combined with the boring outside the ditch or just the boring outside the ditch. In the revised Report, give each boring a separate designation (e.g., NDD-6 and NDD-6A) to distinguish the separate borings. Provide a separate discussion for each boring.

Gallup Response: The discussion on page 4-9 has been revised to discuss NDD-6 as two separate borings. NDD-6A located in the middle of the ditch using a hand auger and NDD-6 completed with the hollow-stem auger rig approximately 15 feet to the north.

NMED Comment 13

Sampling depths should have been modified in the field in a couple of instances. For example, two samples were collected from boring NDD-12, from 0-0.5 ft below ground level (bgl) and from 1.5-2 ft bgl. The description of the boring states, "[t]he lithology encountered consisted of silt from 0 - 2 feet bgl. This low plasticity silt was soft, damp, and exhibited a hydrocarbon odor at the base." The PID reading for the boring increased with depth (8.9 ppm to 66.4 ppm). The Permittee missed the opportunity to define the vertical extent of potential soil contamination. No revision is necessary, but during future investigations, define the vertical extent of contamination if field screening indicates that contamination could be present. In future work plans, provide a contingency for boring installation and additional soil sampling to define the vertical extent of contamination.

Gallup Response: It is noted that boring NDD-12 was designated to be a hand auger boring to assess potential surface impacts and boring NDD-11, which was completed a short distance from NDD-12 pursuant to the Work Plan, was completed using a drilling rig for deeper sampling for vertical delineation (e.g., the sample collected from 12-14' in boring NDD-11).

NMED Comment 14

In Section 4.3.1 (North Drainage Ditch), page 4-10, the Permittee states, "[a]pproximately 145 feet due northwest of NDD-6 are three boring locations NDD-7 (north of ditch), NDD-8 (middle of ditch), and NDD-9 (south of ditch)." The PID readings from borings NDD-8 and NDD-9 were recorded as 904 and 1,530 parts per million (ppm), respectively, which are significantly higher compared to the PID readings from other borings. Neither boring NDD-8 or NDD-9 was drilled deeper for soil investigation or converted to a temporary well to collect groundwater samples. On page 4-11, the Permittee also states, "[a]pproximately 180 feet due northwest of NDD-7, NDD-8 and NDD-9 are three boring locations NDD-10 (north of ditch), NDD-11 (middle of ditch), and NDD-12 (south of ditch)." The PID readings from borings NDD-10, NDD-11, and NDD-12 were significantly lower compared to those from borings NDD-8 and NDD-9; however, boring NDD-11, which exhibited the lowest PID reading

among the set, was drilled deeper to collect soil samples and was converted to a temporary well. The Permittee should have focused on investigating the areas where the highest PID readings were recorded.

No revision required; however, in future work plans, include a provision to more thoroughly investigate the areas where field data indicate the most probable presence of contamination. Propose additional investigation in a work plan to further assess the locations where the high PID readings were observed.

Gallup Response: None required.

NMED Comment 15

The Permittee's description of the intervals encountered in the groundwater monitoring well OW-54 in Section 4.3.2 (Downgradient of OW-14, OW-29, and OW-30), page 4-17, states, "[s]andy Clay: 22 feet bgl - 30 feet bgl (low plasticity, soft, moist to saturated, brown, faint hydrocarbon odor, gravel present)." However, this is not entirely accurate, as the boring log in Appendix G (May 2016 Soil Boring Logs and Well Logs) indicates that the faint hydrocarbon odor was observed in 22 to 24 ft bgs interval and not through the whole interval as described. Revise the description to be more accurate.

Gallup Response: The description in Section 4.3.2 is accurate in regards to the presence of an odor. As noted, the 22 to 24 ft bgs interval does not explicitly state that a faint hydrocarbon odor was observed, but the acronym "STA", which is defined on the log in the 2' - 4' interval to represent "similar to above", is included in the description and the 20 to 22 ft bgs interval on the log did record a faint hydrocarbon odor. Only a notable difference is called out on the field logs under this instance, such as the appearance of gravel in the 24' - 26' and 28' - 30' intervals. Therefore, the description in Section 4.3.2 (page 4-17) is revised to more accurately note the intervals where gravel is present.

NMED Comment 16

In Section 4.4.1 (North Drainage Ditch), page 4-19, the Permittee states, "[t]he well development and purging is [sic] also discussed in Appendix F." In Appendix F (Field Methods), the Permittee states that field measurements of groundwater stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature and the readings are presented in Table 4. Table 4 (Groundwater Field Measurements) presents the readings; however, since only one set of readings is presented, it is not clear that the Permittee followed procedures to ensure stabilization of these readings. Revise Table 4 to present three sets of reading per each well to demonstrate that the parameters were stabilized prior to sampling. In addition, on page 4-20, the Permittee also states, "[t]he purge water was turbid." Turbidity readings are often used as a criterion for groundwater stabilization for newly developed wells. The Permittee must follow RCRA Permit Section IV.J.2.h (Groundwater Sampling).

Gallup Response: No revision has been made to Table 4, as only one set of final readings were recorded. The associated discussion Appendix F has been revised to note when the field measurements presented in Table 4 were collected. The field measurements should have been recorded during the purging event; however, three of the eight wells were temporary wells that bailed dry and at the three new permanent wells the final purge volumes were at least three times greater than the commonly used "three well

volumes” for purging. Regardless, this is an oversight of the Permit requirements and will be corrected in future sampling events.

Although the field parameters measured were consistent with those listed in Section 4.1.7 of the approved Investigation Work Plan, future work plans will include turbidity.

NMED Comment 17

Section 4.4.1 (North Drainage Ditch) states that most temporary wells were installed, purged, sampled and abandoned on the same day or abandoned on the following day. Since the seepage velocity of separate phase hydrocarbons (SPH) may not be consistent with groundwater and may be slower than groundwater recharge, the temporary wells should not have been abandoned immediately. In future investigations, temporary wells must be monitored for the presence of SPH for a minimum of two weeks, where SPH is potentially present. Include the provision in future work plans.

Gallup Response: Future work plans will include a provision to allow new temporary wells to remain open for a minimum of two weeks before plugging to allow sufficient time for SPH to enter the well.

NMED Comment 18

In Section 4.4.2 (Downgradient of OW-14, OW-29, and OW-30), page 4-23, regarding well construction and groundwater sampling, the Permittee states, "[o]n May 26, 2016 the drilling rig was set up on location OW-53. The boring was installed using the HSA drilling method. Groundwater was not encountered. A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 16 feet bgl to 31 feet bgl. The screen was placed from the top of bedrock to encounter any groundwater accumulating on this surface and upward through a silty clay that did not indicate presence of saturation." The Permittee notes that the well was dry during subsequent monitoring events as well. It seems that since saturation was not encountered at all, it would have made sense to not install a well or that the boring be left open for a period of time to see if groundwater entered the boring. Soil samples were not collected for laboratory analysis from the boring for this well either. Therefore, other than the description of the soil lithology, this boring did not add to the data set for this investigation. No revision necessary.

Gallup Response: NMED states that “it would have made sense to not install a well or that the boring be left open for a period of time to see if groundwater entered the boring.” Can NMED provide a specific time period that borings must be left open before plugging to satisfy NMED that groundwater is not present at a particular location? We note that NMED specified above in comment 17 that wells should be left open two weeks to see if SPH enters a well, but we were recently informed in other correspondence to leave temporary wells open for one week to see if SPH was present. It is this type of uncertainty that drives us to complete borings as permanent wells that were so designated in the approved Investigation Work Plan.

NMED Comment 19

In Section 4.4.2 (Downgradient of OW-14, OW-29, and OW-30), page 4-26, regarding well construction and groundwater sampling at well OW-56, the Permittee states, "[g]roundwater was encountered in gravelly sandy clay (12 feet bgl to 14 feet bgl). A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 6 feet bgl to 16 feet bgl. Although saturated sediments were not observed during the drilling activities,

the top of the screen was placed at six feet to intercept the potential occurrence of groundwater in a silty clay that hosted a sand/gravel seam at 7.5 feet bgl to 7.75 feet bgl. The screen was extended across a saturated gravelly sandy clay (12 feet to 14 feet bgl). The screen intercepted the top of bedrock at 14 feet bgl and extended to a depth of 16 feet bgl." The Permittee makes contradictory statements in this paragraph, first stating that groundwater was encountered from 12 to 14 ft bgl in gravelly sandy clay and then stating that saturated sediments were not observed during drilling activities. Revise the Report to accurately describe the groundwater and soil conditions.

Gallup Response: The sentence to which NMED appears to refer is shown as follows, "[A]lthough saturated sediments were not observed during the drilling activities, the top of the screen was placed at six feet to intercept the potential occurrence of groundwater in a silty clay that hosted a sand/gravel seam at 7.5 feet bgl to 7.75 feet bgl." The statement that saturated sediments were not observed is referring to the sand/gravel seam at 7.5 to 7.75 ft bgl, but the explanation is not clear. Otherwise, there are two references in this paragraph that groundwater and "saturated" gravelly sandy clay was encountered in the 12-14' bgl interval. Both groundwater and saturated sediments were observed. To help clarify, the subject sentence has been revised on page 4-26.

NMED Comment 20

Section 4.4.2 (Downgradient of OW-14, OW-29, and OW-30) discusses groundwater measurement relative to the top of casing; however, the Permittee does not discuss the length of casing stickup. The length of the casing above ground level also is not immediately evident from the boring log. The Permittee provided the elevation of the top of casing and the top of the pad. The survey data in Appendix D does not include the elevation of the ground surface for the permanent groundwater monitoring wells. Revise the Report to include the length of stickup so that NMED can determine the depth to groundwater below the ground surface, since that is how groundwater is discussed in other sections of the Report.

Gallup Response: The field measurements of the casing stickup length have been added to Table 4. In addition, the groundwater depth relative to ground level has also been added in Table 4 and Section 4.4.2.

NMED Comment 21

There appears to be a copy-paste error in Section 4.4.2 where the Permittee discusses OW-55 but references well OW-54 on page 4-25. The Permittee states, "[o]n May 31, 2016 OW-54 was gauged. The depth to water was 18.16 feet [below top of casing] btoc." Revise the Report to correct the reference and ensure that other copy-paste errors are corrected, if necessary.

Gallup Response: The discussion on page 4-25, is revised to correct the reference to well OW-54 and the initial water level reading, which was incorrectly reported using the final measurement of well OW-55, is revise to the correct water level initial measurement at well OW-55.

NMED Comment 22

Include a table that lists information regarding the three new wells that were installed (OW-54, OW-55, and OW-56) and the existing wells (OW-13, OW-14, OW-29, OW-30, OW-50, and OW-52) in the area. The table must include information such as the well designation, the ground elevation of the well, total depth, screen interval, and the groundwater level (elevation and depth below ground surface) in the revised Report.

Gallup Response: The requested information is included in the revised Table 4.

NMED Comment 23

In Section 5 (Regulatory Criteria), second paragraph on page 5-1, the Permittee states, "[t]o achieve closure as "corrective action complete without controls", the affected media must meet residential screening levels, which are presented in Table 5. Table 5 also provides a list of the available NMED and EPA soil screening levels for non-residential properties." Then, in the fourth paragraph on pages 5-1 and 5-2, the Permittee states, "[t]he aforementioned Table 5 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 soil-to-groundwater soil screening level is not applicable to the specific conditions observed at the North Drainage Ditch and the OW-29 & OW-30 Areas. The "impacted" soils appear to be impacted as the result of lateral transport of contaminants in groundwater to the locations where soil samples were collected and analyzed. The subject groundwater contamination originates from various up-gradient sources. NMED recently provided guidance to address this situation in Comment No. 2 in the June 14, 2018 Disapproval Investigation Report SWMU 10 Sludge Pits. NMED stated, '... since groundwater contamination beneath the Sludge Pits originates from various upgradient sources, and contamination is already present in the aquifer, the use of a site-specific DAF is not applicable. DAF is used to determine if contaminants in soil can migrate to groundwater, and in this case, groundwater is contaminated in the area.'" The Permittee seems to misinterpret NMED's comment. To further clarify NMED's statement regarding DAF, there were several issues regarding the Permittee's calculated DAF used in the SWMU 10 Sludge Pit investigation report. The Permittee calculated a site-specific DAF based on data collected from another unit. It is clear that some of the contamination found during that investigation is from upgradient sources; however, the Sludge Pits affected the area as well. It was not appropriate to use soil data from the Aeration Basin to calculate a DAF for the Sludge Pits. The Permittee then based its investigation on the calculated DAF rather than use an industrial or residential soil screening level. Investigations should not be based on a calculated DAF; the highest SSL listed in NMED's Guidance Table A-1 for a chemical based on a DAF of 20 (e.g., the industrial, construction, or residential SSLs as appropriate) should be applied for initial screening. If potential for migration to groundwater is applicable for a site, the NMED may determine that a DAF of 1 or greater, as calculated using the NMED-approved methods, for contaminated soils is appropriate to achieve clean closure. There is no need to discuss DAF values in Section 5 if the Permittee is not using them. Since groundwater is already affected by contaminants, use of DAF is irrelevant because soil contaminants have affected groundwater. Remove the reference to NMED's comment regarding the SWMU 10 Sludge Pit investigation and remove the discussion of DAF from this section of the Report.

Gallup Response: The reference to NMED's comment regarding the SWMU 10 Sludge Pit has been removed and the DAF screening level is not used for comparison to site concentrations. To make sure the reader understands the DAF screening levels were intentionally not utilized and it was not just an oversight, we included a brief note using NMED's statement above ("Since groundwater is already affected by contaminants, use of DAF is irrelevant because soil contaminants have affected groundwater.").

NMED Comment 24

In Section 6.1 (Soil Analytical Results), on page 6-2, the Permittee states, "[t]here are 16 soil samples [list of borings and sample intervals] with concentrations of manganese ranging from 480 mg/kg to 1,600 mg/kg, which exceeded the non-residential (i.e., construction worker) screening

level of 464 mg/kg as indicated with highlighting in Table 7. The concentrations are shown on Figure 14. All sample results are less than the residential soil screening level of 10,500 mg/kg." Elevated manganese concentrations may be detected at refinery sites because some crude oils contain high concentrations of manganese or due to reducing conditions. Discuss whether there is information available regarding the level of manganese in crude oil historically stored at the facility.

Gallup Response: There is no information known to be available regarding the manganese concentrations in crude oil stored at the site. The discussion on page 6-2 has been revised to note this fact.

NMED Comment 25

In Section 6.1 (Soil Analytical Results), on pages 6-2 and 6-3, the Permittee states, "[t]he detected concentrations [of gasoline range organics (GRO)] range from 0.061 mg/kg to 1,900 mg/kg," and "[t]he detected concentrations [of diesel range organics (DRO)] range from 8.3 mg/kg to 27,000 mg/kg," and "[t]he detected concentrations [of motor oil range organics (MRO)] range from 360 mg/kg to 19,000 mg/kg." The Permittee must collect a groundwater sample for fingerprint analysis to determine the possible source(s) of the contamination, if nearby wells contain SPH.

Gallup Response: There are no nearby wells with SPH; however, SPH samples are scheduled to be collected from the closest wells with SPH (RW-5 and RW-6) for finger print analyses to address prior NMED comments.

NMED Comment 26

In Section 6.2 (Groundwater Analytical Results), on page 6-4, the Permittee states, "[i]n addition, groundwater samples were analyzed for chloride, fluoride, and sulfate using EPA method 300." Elevated levels of nitrate and nitrite may be present at the site. Propose to collect groundwater samples for nitrate and nitrite analyses from all groundwater monitoring wells at the site in the 2019 Facility-Wide Groundwater Monitoring Work Plan. No revisions to this Report are necessary.

Gallup Response: The 2019 Facility-Wide Groundwater Monitoring Work Plan will be revised to include nitrate and nitrite for all groundwater samples. We note that the short holding times for nitrite make it extra difficult to complete the field sampling, especially for such a large number of wells as is involved in the facility-wide sampling program.

NMED Comment 27

In Section 6.2 (Groundwater Analytical Results), on page 6-4, the Permittee states, "[t]he individual results that exceed the applicable cleanup levels are highlighted [in Table 8]." The exceedances are indicated with bold font, rather than highlighted. Resolve the discrepancy in the revised Report.

Gallup Response: The text on page 6-4 has been revised to note the exceeding values are bolded in Table 8.

NMED Comment 28

The Permittee states in Section 7.2 (Recommendations), pages 7-3 and 7-4, "[s]ix additional temporary wells are recommended to complete the lateral delineation of impacts to groundwater to the northwest and north of the North Drainage Ditch borings and northwest of monitor wells OW-53 and OW-54. These additional borings will be installed and sample collection and analysis will

be completed pursuant to the previously approved Investigation Work Plan for OW 29 & OW-30 and North Drainage Ditch Areas (Western Refining Southwest, Inc. August 2015). The proposed boring locations are depicted on Figure 25." If the Permittee wishes to conduct an additional investigation, the Permittee must submit a separate work plan to propose the work. It does not appear that the location of the temporary wells as depicted in Figure 25 makes sense based on the information provided in this Report. Explain the basis for the proposed location of temporary wells in the in the work plan proposing the additional work. Determine if there is a continuing source as well as delineating impacts in the next phase of investigation.

Gallup Response: A separate work plan will be submitted.

NMED Comment 29

Table 3 (Soil Boring Samples - Vapor Screening Results) presents vapor screening results. Two different PID readings are presented for sampling depths between zero to two feet bgs at borings NDD-5 through NDD-17. The former readings were collected at the depth between zero and 0.5 feet bgs and the latter readings are collected at the depth of 1.5 feet bgs according to Section 4.3.1. Provide the note for the two readings in Table 3. In addition, only one PID reading is presented for borings NDD-1 through NDD-4 and OW-53 through OW-56 at the same depth interval. Explain why only one reading is provided for borings NDD-1 through NDD-4 and OW-53 through OW-56 while two readings are provided for NDD-5 through NDD-17.

Gallup Response: Table 3 is revised to include the note on the two PID readings. Regarding the inclusion of separate PID readings for the 0-0.5' and 0.5-2' intervals, first we note that Table 3 is incorrect for boring NDD-4 and has been corrected to show a value for both the 0-0.5' (3.5 ppm) and 0.5-2' (7.1 ppm). With this correction, borings NDD-4 through NDD-17 include separate readings for the 0-0.5' and 0.5-2' intervals. Borings NDD-1 through NDD-3 were completed earlier and were not collected under the approved Investigation Work Plan, but were continuously logged and screened with a PID on two-foot intervals as normally conducted. For borings NDD-4 through NDD-17, although the approved Investigation Work Plan specified screening on two-foot intervals, we routinely attempt to field screen each sample interval collected for analysis separately, if possible based on the volume of soil collected and the required analyses. Borings OW-53 through OW-56 were screened on two-foot intervals pursuant Section 4.1.1 of the approved Investigation Work Plan.

NMED Comment 30

Table 9 (Soil Cumulative Risk and Hazard Index Evaluation), Table 10 (Groundwater Cumulative Risk and Hazard Index Evaluation) and Section 7.1 (Conclusions) present the calculation of the cumulative risk for soil and groundwater. It is not clear why the Permittee calculated risk when additional work is proposed. The calculation of risk associated with contaminants should be conducted when an investigation is thought to be concluded. The cumulative risk is calculated to demonstrate that site constituent concentrations are below NMED requirements for corrective action complete determinations. It is inappropriate to calculate cumulative risk for groundwater as there are specific groundwater standards that must be met. Remove the risk calculation discussion and associated tables from the revised Report.

Gallup Response: Tables 9 and 10 have been removed from the report along with the related discussion in Section 7.1.

NMED Comment 31

Figure 7 (Cross Section Location Map), Figure 10 (Isopach Map Saturated Sand and Gravel Above Chinle Group), Figure 11 (Paleotopography Top of Chinle Group), and Figure 12 (September 2016 Potentiometric Surface Map) include soil boring locations that are not presented in the Report. North of the drainage ditch are two borings, 0117-B2 and 0117-B1. South of OW-54 there are borings 0649 and MP-9. Along the A-A' line there is boring 548, 643, and 651. Borings MP-5 and MP-4 are located along the landing strip. South of OW-14 there is boring B-1. To the east of the railyard loading rack there is boring 652. Borings 0665, 657, 656, and B-3 are located in the boneyard. Clarify what these borings are related to in the response to comments letter. Additionally, borings such as 656 and B-3, located just north of Tank 583 and Tank 579 may be useful to demonstrate whether there are diesel impacts since both tanks store diesel. Include this information in the revised Figures 10 and 11.

Gallup Response: These borings were completed during the earlier RFI conducted in the 1990s. As such, it is doubtful they will provide information on current environmental conditions, but they certainly help document environmental conditions when they were installed 20 plus years ago and provide valuable information on the subsurface hydrogeology. NMED request to “[I]nclude this information in the revised Figures 10 and 11.” We are not exactly certain to what information NMED is referring, but have included the relevant hydrogeologic information on Figures 10 and 11. It is noted that in 1997 when boring 656 was installed, there was no hydrocarbon odors or other signs of impact. Boring B-3 was completed in 1995 and while there was staining and “some odor” in a 5-inch interval at the top of the sand interval (logged from 20.0’ – 24.4’), which immediately overlies the bedrock, we do not believe this can be relied upon for current conditions. We propose to include a copy of all of the historic boring logs in the area in the new work plan required above in comment 28.

NMED Comment 32

Figure 15 is missing from the printed and electronic versions of the Report. In the revised Report, include Figure 15, which depicts the gasoline range organics (GRO) concentrations at the North Drainage Ditch.

Gallup Response: Figure 15 has been included in the revised report.

NMED Comment 33

The MTBE concentration in the groundwater sample collected from temporary well NDD-16 was recorded as 75 ug/L according to Figure 22 (VOCs Groundwater Map). Well NDD-16 was located furthest west within the boundary of the North Drainage Ditch. The MTBE concentrations in the samples collected from wells OW-50 and OW-52, located directly north of the suspected MTBE source area, were recorded as 0.5J ug/L and 0.49J ug/L, respectively. The concentration of MTBE in temporary well NDD-16 is significantly higher and may indicate that the North Drainage Ditch is a conduit for contaminant migration. Provide an explanation for the fate of ponded water in the North Drainage Ditch. The dense bushed area extends from the east end of the North Drainage Ditch to the tank farm. The dense bushed area may also be a part of the North Drainage Ditch. The area extending from the tank farm must also be investigated. Propose to submit a work plan to investigate the area in the revised Report.

Gallup Response: The ponded water in the North Drainage Ditch could potentially flow beyond the ditch to the west toward stormwater Outfall #1. As shown on the topographic map included as Figure 5, the ditch terminates near NDD-16 and beyond this point, there is no location for concentrated flow of surface water as explained on page 2-1 of the report, but overland flow could continue. This discussion

on page 2-1 has been revised pursuant to comment 5 above. Section 7.2 has been revised to propose submittal of a work plan to investigate the area between the North Drainage Ditch and the tank farm.

NMED Comment 34

Appendix C is titled as Waste Manifests in the Table of Contents. However, the Report contains four Appendices C titled as Waste Manifests, Aquifer-Test Data and Analyses, RCRA Post-Closure Care Permit Application Land Treatment Unit, and Land Treatment Unit Historical Information and Data some of which appear to be part of Appendix E. Remove unnecessary pages and revise the Report for clarity.

Gallup Response: The problem appears to be with the reproduction of the hard copies of the Report and this has been resolved.

NMED Comment 35

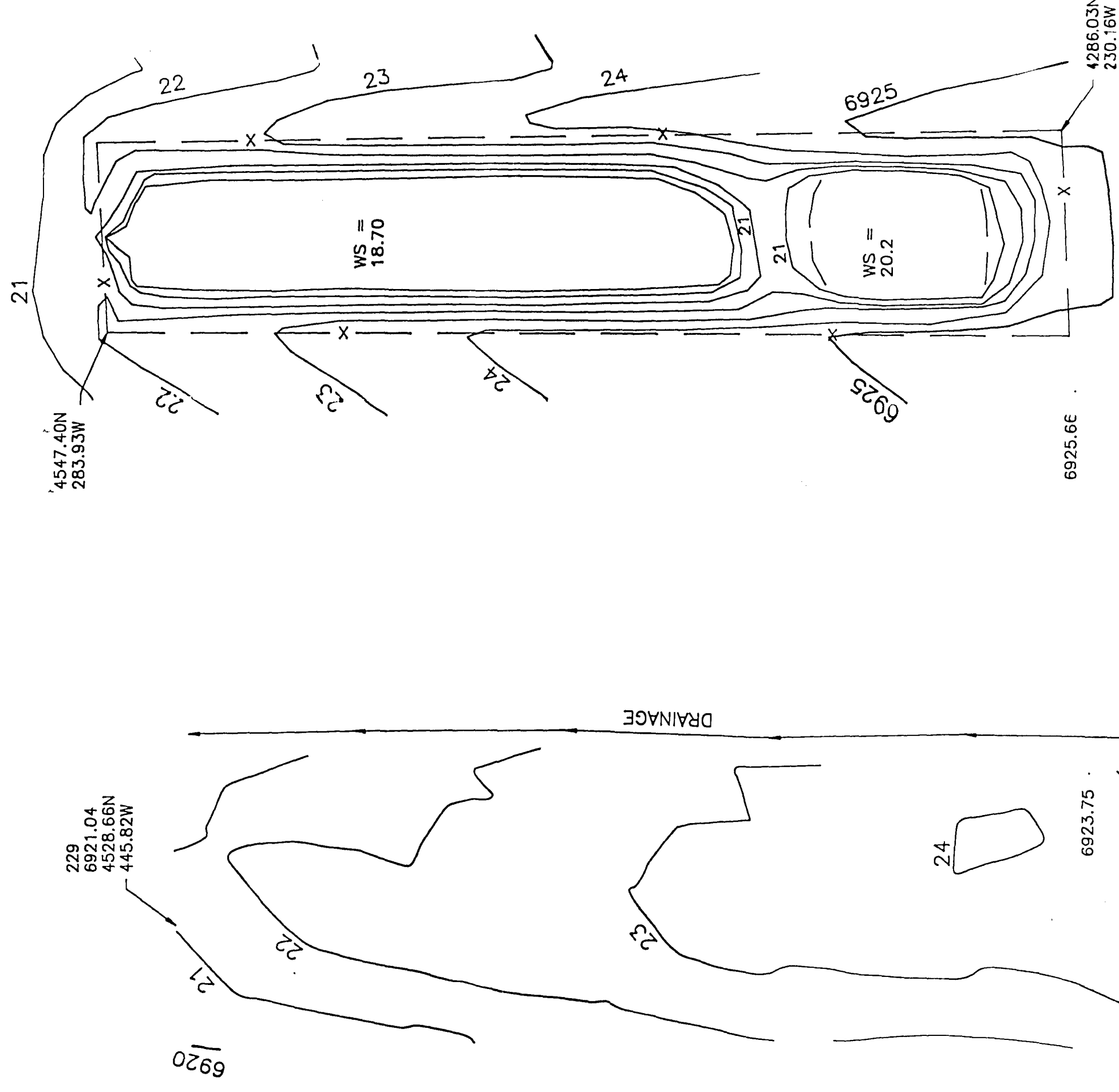
Appendices H and I are included in the electronic Report but not included in the printed Report. Since Appendices H and I include analytical laboratory data reports and quality assurance/quality control review, the practice is appropriate. However, the printed Report does not include tabs for the missing appendices, so readers can be misled to assume that these appendices are not included at all. Divider tabs for the appendices must be included in the revised printed Report.

When appendices are provided in electronic format only, insert a page followed by the divider tab in the printed Report to clarify that the laboratory reports and files are provided by electronic format only.

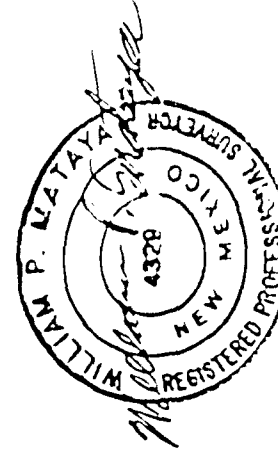
Gallup Response: The divider tabs and pages noting the subject material is provided only in electronic format have been added to Appendix H. Appendix I is routinely provided in hard copy.



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**Marathon
Petroleum Company LP**

May 13, 2019

Mr. John E. Kieling, Chief
New Mexico Environmental Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, NM 87505-6303

RE: Response to Disapproval
Investigation Report for North Drainage Ditch and OW-29 & OW-30 Areas
Marathon Petroleum Company LP, Gallup Refinery
(dba Western Refining Southwest Inc.)
EPA ID# NMD000333211
HWB-WRG-18-008

Dear Mr. Kieling:

Gallup Refinery is submitting the enclosed responses to your comments dated February 8, 2019 on the referenced Investigation Report. The Investigation Report has been revised per your comments and enclosed for your review. If there are any questions, please call John Moore at 505-722-0205.

Certification

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

Sincerely,
Marathon Petroleum Company LP

A handwritten signature in blue ink that reads 'Robert S. Hanks'.

Robert S. Hanks
Refining General Manager

Enclosure

cc K. Van Horn NMED
C. Chavez NMOCD
L. King EPA Region VI
B. Moore Marathon Gallup Refinery

INVESTIGATION REPORT
North Drainage Ditch and OW-29 & OW-30
Areas



Gallup Refinery
Western Refining Southwest, Inc.
Gallup, New Mexico
EPA ID# NMD000333211

August 2018

Revised April 2019

A handwritten signature in black ink, appearing to read 'Scott Crouch', is positioned above a horizontal line.

Scott Crouch, P.G.
DiSorbo Consulting, LLC



DiSorbo
Environmental Consulting Firm

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Appendix B North Drainage Ditch May 2015 Soil Boring Logs

Appendix C Waste Manifests

Appendix D Survey Data

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Appendix F Field Methods

Appendix G May 2016 Soil Boring Logs and Well Logs

Appendix H Analytical Data Reports

Provided in electronic format only on CD

Appendix I Quality Assurance/Quality Control Review

Appendix J Tank Farm Information

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. Past inspections by State [New Mexico Environment Department (NMED)] and federal environmental inspectors have identified locations where releases to the environment may have occurred. These locations are generally referred to as Solid Waste Management Units (SWMUs) or Areas of Concern (AOCs). Pursuant to the terms and conditions of the facility's Resource Conservation and Recovery Act (RCRA) Post-Closure Care Permit and 20.4.1.500 New Mexico Administrative Code (NMAC), this environmental site investigation was completed for the area near the North Drainage Ditch and monitoring wells OW-29 and OW-30, which are both located north of the Refinery Tank Farm (SWMU No. 6).

The activities completed include sampling and analysis of soils and groundwater along the North Drainage Ditch and sampling of groundwater in the area of wells OW-29 and OW-30. A groundwater sample was previously collected from within the east end of the North Drainage Ditch in 2015 and surface water samples were previously collected along the North Drainage Ditch in 2009 and 2015. The current investigation began on May 23, 2016 and continued through June 1, 2016. This included the completion of 14 soil borings with 35 soil samples (excluding additional quality assurance samples) collected for analysis of potential site-related constituents (e.g., volatile and semi-volatile organics, total petroleum hydrocarbons, and metals).

At the North Drainage Ditch, manganese was detected in soils at concentrations above the non-residential (i.e., construction worker) soil screening level in 16 samples; however, none of these exceeded the higher residential screening level. It is possible that some of these detections are reflective of naturally occurring concentrations but a site-specific metals background study will be required to make this determination. The analyses of soils for total petroleum hydrocarbons (TPH) indicated concentrations above screening levels in several samples. Gasoline Range Organics (GRO) exceeded the residential screening level in one sample. Diesel Range Organics (DRO) was found to exceed the residential screening level in five soil samples, with four of those also exceeding the non-residential soil screening level. Motor Oil Range Organics (MRO) exceeded the residential soil screening level in one sample near the North Drainage Ditch and in a second sample collected from one of the well borings to the east in the OW-29 & OW-30 Area. The sample near the North Drainage Ditch also exceed the non-residential soil screening level for MRO.

Temporary well completions were installed in 4 boreholes (NDD-4, NDD-6, NDD-11, and NDD-16) where saturation was encountered. Four permanent groundwater monitoring wells (OW-53, OW-54, OW-55, and OW-56) were installed, although OW-53 continues to be dry. Seven 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) during the May 2016 and June 2016 field activities.

There were numerous metals in the totals analyses (arsenic, barium, beryllium, chromium, cobalt, iron, lead, manganese, nickel, and vanadium) and chloride detected at concentrations above residential/tap water screening levels in groundwater samples collected from the temporary well completions and permanent well completions. At least one of these exceedances of screening levels for inorganic constituents occurred in every groundwater sample analyzed. Due to insufficient volume of water in OW-56, a groundwater sample for inorganic constituents was not able to be collected. Arsenic, barium, cobalt, iron, manganese, and nickel were detected at concentrations above screening levels in the dissolved analyses. At least one dissolved metals analysis was in every groundwater sample collected except NDD-4-GW.

Twelve organic constituents (bis(2-ethylhexyl) phthalate, 1-methylnaphthalene, 2-methylnaphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, benzene, ethylbenzene, MTBE, naphthalene, toluene, and xylenes) were detected at concentrations above screening levels in at least one of the seven groundwater samples collected from the temporary well completions or permanent well completions. TPH as gasoline range organics (GRO) was detected above the screening level in all seven groundwater samples collected in May and June 2016 and was detected as diesel range organics (DRO) at concentrations above the screening level in five of the seven groundwater samples.

Western is recommending six additional temporary well completions to facilitate lateral delineation of impacts to groundwater. In addition, a separate investigation is recommended to evaluate naturally occurring concentrations of inorganic constituents in soil.

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, mercox 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 and includes the North Drainage Ditch and the area to the east near wells OW-29 and OW-30. The purpose of the site investigation is to determine the extent of groundwater impacts down-gradient of OW-14, OW-29 and OW-30 and determine the extent of impacts to soil and groundwater near the North Drainage Ditch, and more generally investigate the presence, nature, and extent of releases of contaminants in accordance with 20.4.1.500 NMAC incorporating 40 Code of Federal Regulations (CFR) Section 264.101. The investigation was completed pursuant to the *Investigation Work Plan OW-29 & OW-30 and North Drainage Ditch Areas* dated August 2015 (approved with modifications February 23, 2016).

Section 2 presents background information for the North Drainage Ditch and the area near wells OW-29 and OW-30, including a review of historical waste management activities to help identify 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, installation of permanent monitoring wells, and sample collection. The fourth section 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 analyzed for volatile and semi-volatile organic compounds, TPH, metals, and inorganic/general chemistry constituents. The results of these analyses are compared to applicable State or federal screening levels. Section 7 summarizes and provides an evaluation of the potential impacts and provides recommendations for any future actions.

Section 2

Background

This section presents background information for the North Drainage Ditch and the area near wells OW-29 and OW-30, which are both north of the Tank Farm (SWMU No. 6), including a review of historical waste management activities to identify the following:

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

2.1 North Drainage Ditch

The area designated as the North Drainage Ditch is actually part of a larger drainage feature that begins on the north side of the tank farm, extends north, running approximately 200 feet west of the western boundary of Solid Waste Management Unit (SWMU) 9 – Drainage Ditch and Inactive Landfarm, and passes beneath a dirt road, where it bifurcates (Figure 2 and Figure 5). As shown on Figure 5 (Topographic Map), surface water flow across SWMU 9 would flow northwest and eventually enter this drainage feature. One lesser segment extends to the northeast and the other turns to the west, where it extends westward for approximately 400 feet and then turns northwest through the area that is the focus of this investigation. There is an area along the ditch that is lower in elevation than the sections to the east or west and has the potential for standing water to be present at least during a portion of the year. Just to the east of this lower portion of the ditch, a berm crosses the ditch and directs surface flow coming from the east to the north side of the ditch where flow spreads out and continues downslope to the northwest (Figure 5). At the western end of the North Drainage Ditch, as shown on Figures 2 and 5, the ditch basically ends and there is no clearly defined channel beyond this point. It appears any flow of surface water beyond this point would move to the north along the east side of a dirt road a short distance before crossing over the road and continuing west and then southwest eventually making its way to stormwater outfall #1.

It is not clear if the portion of the ditch that flows north from the tank farm is a natural drainage course or manmade, while the portion to the northwest identified as the North Drainage Ditch is clearly manmade; it is a linear feature with rock/concrete structures. There is no record of waste or

other contaminants being handled in the proposed area of investigation, nor is there a record of site operations in this area.

It appears this area was initially discovered as potentially being impacted by hydrocarbons in October 2009. During a routine inspection of site drainage features, a ditch was discovered to have “non-moving water” with possible hydrocarbon staining and an odor similar to diesel. A C-141 Form was submitted to the New Mexico Oil Conservation Division (NMOCD) and NMED on October 20, 2009 and a copy is included with the associated laboratory analysis in Appendix A. The potentially affected portion of the ditch was estimated to be 40 feet long with water depths of a few inches and up to one foot in width. Subsequently, three soil and three water samples were collected and analyzed. The water samples were analyzed for TPH by method 418.1 and the soil samples were analyzed for semi-volatile organic compounds (SVOCs) by methods 8270, metals using the toxicity characteristic leaching procedure (TCLP) and TPH by method 418.1. The water samples indicated the presence of TPH using the 418.1 method (Table 1), but the soil results were mostly non-detect. Only soil sample DITCH-SS1 had reported concentrations of 2-methylnaphthalene at 1.1 mg/kg, naphthalene at 1.3 mg/kg, and TPH at 22 mg/kg. For comparison, the EPA residential soil screening level for 2-methylhapahthalene is 240 mg/kg. For naphthalene the NMED residential soil screening level is 49.7 mg/kg. The TPH screening level for unknown oil is 1,000 mg/kg. Based on the fact that the water appeared to be ephemeral in nature and there were very few detections of only low concentrations of chemical constituents in surface soils no further action was taken at the time. The laboratory report is provided in Appendix A.

Water was recently observed in the ditch again with potential hydrocarbon impacts and notification was provided to the NMED and NMOCD on April 22, 2015. Since 2015 water has been observed in the trench on several occasions and it may be more appropriately described as intermittent under current conditions. Three surface water samples were collected from locations A-1, B-1, and C-1 on March 19, 2015 (Figure 2). The water samples were analyzed for BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, MTBE, TPH, and RCRA metals. The results are summarized in Table 1 and the laboratory report is provided in Appendix A. Benzene, xylenes, MTBE, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, arsenic, and barium were detected at concentrations above screening levels (NMED, 2015).

After the standing water in the ditch was removed with a vacuum truck, an additional water sample was collected from the ditch on April 23, 2015 and analyzed for VOCs (sample ID North Drainage Ditch). The detected results are summarized in Table 1 and the laboratory report is provided in

Appendix A. Benzene, xylenes, 1,2,4-trimethylbenzene, and naphthalene were detected at concentrations above screening levels.

Based on the detections in the surface water samples collected in March 2015, three soil borings (NDD-1, NDD-2, and NDD-3) were completed in the area on May 11, 2015 (Figure 2). Borings NDD-1 and NDD-2 were drilled into the bedrock but did not encounter saturation. Boring NDD-3 did encounter saturation and a groundwater sample was collected from a temporary well completion on May 14, 2015 and analyzed for VOCs, SVOCs, and TPH. The boring logs are included in Appendix B. The detected compounds are summarized in Table 1 and the laboratory report is included in Appendix A. MTBE and 1,2-dichloroethane were detected at concentrations above screening levels.

2.2 OW-29 and OW-30 Area

There is no documentation of waste or contaminants being handled in the immediate vicinity of OW-29 or OW-30; however, the wells are located down-gradient of the refinery Tank Farm (SWMU No. 6) (Figure 2). Potential sources are the tanks and ancillary equipment in the refinery tank farm. MTBE has not been used or stored at the refinery since 2006, thus there is not an active primary source for the observed MTBE impacts. MTBE was previously stored in tanks TK-568 and MKT-TK-06. A review of facility records did not identify indications leaks at either of these tanks. The last internal inspection at MKT-TK-06 (Marketing Tank 6) was conducted in October 2014 and the last internal inspection at TK-568 was completed in February 2006. Tank TK-568 has been used to store ammonium thiosulfate since 2005 and Marketing Tank 6 is used to store ethanol. The tanks are routinely inspected both externally and internally pursuant to American Petroleum Institute (API) standard 653, which includes tank inspection, repair, alteration, and reconstruction. While inspections may occur more frequently, Standard 653 requires inspection no less frequently than every 10 years. The tank storage and inspection records and a map of the tank farm are included in Appendix C of the *Investigation Work Plan OW-29 & OW-30 and North Drainage Ditch Areas* (DiSorbo, 2015).

Monitoring wells OW-29 and OW-30 were installed in August 1996 to provide down-gradient coverage from monitoring well OW-14. All three wells are screened in the alluvium immediately overlying the Chinle Group. As discussed in the 2013 *Annual Ground Water Monitoring Report*, MTBE has been detected in OW-29 since 2007 and has been increasing in concentration (Western, 2013). BTEX constituents were not detected at OW-29 from 2006 through August 2016. Benzene was detected at a concentration of 0.0079 mg/l in the groundwater sample collected on November

15, 2016 from OW-29. MTBE has also been detected above screening levels at OW-30 and has been increasing in concentration; however, BTEX constituents have been reported as non-detect from 2006 through 2016. The analytical results for groundwater samples collected at OW-29 and OW-30, as well as, OW-14 and OW-13 (screened in the Sonsela Sandstone aquifer) are summarized in Table 2. Laboratory analytical reports have previously been provided in the Annual Ground Water Monitoring Reports.

To evaluate the potential for migration of constituents in the down-gradient direction to the north of OW-29 and OW-30, two wells (OW-50 and OW-52) were installed in October 2009 pursuant to a directive received from NMED on May 28, 2009. Groundwater samples collected at these two wells did not contain detectable concentrations BTEX or MTBE until September 2016 when MTBE was first detected at both wells (Table 2).

Section 3

Scope of Activities

3.1 Soil Boring, Monitoring Well Installation and Sample Collection

Pursuant to the approved Investigation Work Plan, 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, temporary monitoring wells and permanent monitoring wells were installed (Figures 3 and 4).

3.1.1 Site Investigation

The scope of work for the investigation at the North Drainage Ditch was conducted to characterize and delineate impacted soils and groundwater that were recently identified during a site inspection conducted by Western. Eight locations were proposed along the length of the North Drainage Ditch that extend to the east and west of where surface water was previously observed (Figure 3). At each location, soil samples were to be collected from the bottom of the drainage ditch from the surface (0 feet – 0.5 feet) and shallow subsurface (1.5 feet – 2.0 feet). In addition, at three locations additional surface (0 feet – 0.5 feet) and shallow subsurface (1.5 feet – 2.0 feet) soil samples were to be collected by moving approximately 10 feet beyond the limits of the ditch on both sides.

At four of the North Drainage Ditch “channel” sampling locations deeper soil borings were scheduled to be extended to define the vertical extent of impacts to soil and determine if shallow groundwater is present. If access to the bottom of the ditch was not possible with the drilling rig, then soil samples were to be collected from shallow depths (0 feet to 2 feet) using a hand auger in the bottom of the ditch and the drilling rig then positioned as close as practical to the ditch to continue sampling deeper intervals. Groundwater samples were to be collected from temporary well completions if groundwater is encountered. Pursuant to comments received from NMED on the Investigation Work Plan, one of the deeper soil borings (NDD-6) originally targeted near the center of the ditch was moved approximately 16 feet north of the bottom of the ditch. All of the proposed borings were completed per the approved with modifications Investigation Work Plan. The soil samples were analyzed for TPH [gasoline range organics (GRO), diesel oil range organics (DRO), and motor oil range organics (MRO)], VOCs, SVOCs, Skinner list metals, iron, and manganese.

To define the down-gradient extent of impacted groundwater observed at monitoring wells OW-14, OW-29 and OW-30, three new permanent monitoring wells (OW-53, OW-54, and OW-55) were proposed (Figure 4). In addition, a permanent monitoring well (OW-56) was proposed at the location of the former NDD-3 temporary well location. All four permanent monitoring wells were completed, although one well (OW-53) appears to be dry.

Soil samples were collected at the 18 locations shown on Figure 3. Excluding earlier soils borings NDD-1, NDD-2, and NDD-3, four soil borings were advanced using hollow stem augers with temporary well completions in each. The following list provides a summary of the soil borings advanced using hollow stem augers:

- NDD-4 advanced to 20 feet below ground level (bgl); temporary well installed;
- NDD-6 advanced to 12.5 feet bgl; temporary well installed;
- NDD-11 advanced to 14 feet bgl; temporary well installed; and
- NDD-16 advanced to 24 feet bgl; temporary well installed.

Ten soil borings were advanced using a hand auger. The following list provides a summary of the soil borings advanced using a hand augers:

- NDD-5 advanced to 2 feet bgl;
- NDD-6A advanced to 2 feet bgl;
- NDD-7 advanced to 2 feet bgl;
- NDD-8 advanced to 2 feet bgl;
- NDD-9 advanced to 2 feet bgl;
- NDD-10 advanced to 2 feet bgl
- NDD-12 advanced to 2 feet bgl;
- NDD-13 advanced to 2 feet bgl;
- NDD-14 advanced to 2 feet bgl;
- NDD-15 advanced to 2 feet bgl; and
- NDD-17 advanced to 2 feet bgl.

In addition to the soil sampling effort identified in the Investigation Work Plan, three soil samples were collected during to installation of wells OW-54 and OW-55 to help confirm potentially impacted intervals deeper in the subsurface that may be allowing lateral transport. This includes:

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-
- OW-54 (14-16'); boring advanced to 30 feet bgl; and
 - OW-55 (16-18') and (30-32'); boring advanced to 32 feet bgl.

Groundwater samples were collected from four temporary well completions and three new permanent monitoring wells (Figure 4). The groundwater samples were analyzed for VOCs, SVOCs, TPH (GRO, DRO, and MRO), Skinner List metals, iron, manganese, chloride, fluoride, and sulfate. The following list provides a brief summary of the groundwater sample collection.

- NDD-4; developed and sampled; yielded enough water for a full analytical suite;
- NDD-6; developed and sampled; yielded enough water for a full analytical suite;
- NDD-11; developed and sampled; yielded enough water for a full analytical suite;
- NDD-16; developed and sampled; yielded enough water for a full analytical suite;
- OW-53; no water samples collected as the well did not produce water;
- OW-54; developed and sampled; yielded enough water for a full analytical suite;
- OW-55; developed and sampled; yielded enough water for a full analytical suite; and
- OW-56; developed and sampled; yielded enough water during the initial sampling event for VOCs, SVOCs, and TPH. Metals analyses were conducted during a subsequent sampling event at the time of the routine facility-wide third quarter groundwater sampling event.

3.2 Collection and Management of Investigation Derived Waste

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) associated with soil borings were contained and characterized using methods based on the boring locations and type of contaminants suspected or encountered. All drill cuttings generated during the investigation at the North Drainage Ditch and the area of OW-29 and OW-30 were collected and put into 55-gallon drums.

The soils in the 12 drums were not sampled at the time of drilling. Using a generator waste profile sheet, 10 of the drums were shipped off-site to Advanced Chemical Treatment Facility for disposal on August 1, 2016. The remaining two drums were shipped off-site to Advanced Chemical Treatment Facility for disposal on March 13, 2017.

Copies of the waste profile sheet and the waste manifests are included in Appendix C. All purge water and decontamination water was 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 were completed by a registered land surveyor for soil borings NDD-1, NDD-2, and NDD-4 through NDD-17 to include geographic position and land surface elevation. In addition, new permanent monitoring wells OW-53, OW-54, OW-55, and OW-56 were also surveyed. The survey data is included in Appendix D.

Section 4

Field Investigation Results

This section provides a summary of the surface and subsurface conditions at the refinery, including the area near the North Drainage Ditch and monitoring wells OW-29 and OW-30. 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 and permanent well completions and the collection of groundwater samples.

4.1 Surface Conditions

A topographic map of the area north of refinery tank farm including the North Drainage Ditch and wells OW-29 and OW-30 is included as Figure 5. Local site topographic features include high ground in the southeast gradually decreasing to lowland fluvial plain in the northwest. Elevations on the refinery property range from 6,860 feet to 7,040 feet. The area of the site near the North Drainage Ditch is at an approximate elevation of 6,910 feet and the area near wells OW-53 through OW-56 ranges from 6,912 to 6,917 feet above mean sea level (msl).

The soils in the vicinity of the North Drainage Ditch and wells OW-29 and OW-30 include two soil types. Surface soils within most of the area of investigation are primarily Rehobeth silty clay loam. To the north are the bordering Simitarq-Celavar sandy loams. Rehobeth soil properties include a pH ranging from 8 to 9 standard units and salinity (naturally occurring and typically measuring up to approximately 8 mmhos/cm). The Simitarq-Celavar soils 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.

Regional surface water features include the refinery evaporation ponds and a number of small 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

One underground crude oil pipeline was detected during clearance of utilities in the area north of the North Drainage Ditch (Figure 2). As shown on Figure 2, there are three crude oil pipelines to north and west of the area investigated. Two of the lines are in service with one abandoned line. The abandoned pipeline is one of the pipelines that runs to the northwest. No adjustments were made to the originally proposed sampling locations.

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 6). The Quaternary alluvium is thought to be the parent material of the Simitarq-Celavar and Rehobeth soils discussed above in Section 4.1. Two cross sections of the shallow subsurface in the immediate vicinity of the North Drainage Ditch and the area down-gradient of OW-29 and OW-30 are included as Figures 8 and Figure 9. Figure 7 shows the location of the two cross sections. As shown on the cross sections, the predominant lithology is silty clay with lesser amounts of sand in varying proportions. The predominant occurrence of sand is in the southern portion of the area near OW-14 and OW-55, and in NDD- 11.

An isopach map of the thickness of potentially transmissive materials (e.g., sand, sandy gravel, clayey gravel, clayey sand, etc.) that are below the water table is included as Figure 10. There are two areas that show a thicker accumulation of saturated transmissive materials. One being near OW-14 and extending northward and the second appearing to extend from beyond the northwest corner of the refinery tank farm to a location beneath the North Drainage Ditch near boring NDD-6. These features may be acting as preferential pathways for contaminant migration away from the refinery tank farm. A second map (Figure 11) was prepared to show the approximate elevation on

top of the bedrock (Chinle Group). This surface is probably reflective of the land surface present when the Quaternary alluvium was deposited. There are two prominent features on this map, a trough extending northward from the northeast corner of the refinery tank farm and a topographic high in the area of OW-13. A comparison between the transmissive materials isopach map and the map of the bedrock surface elevation indicates a possible correlation between the trough near the northeast corner of the refinery tank farm and an increased isopach thickness. The second area of increased isopach thickness lies west of the topographic high at OW-13, which may have influenced its location.

Subcropping beneath the Quaternary alluvium is the Triassic Chinle Group (Figure 6). 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, as depicted on cross sections A-A' and B-B' (Figures 8 and 9). 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

Generally, the potentiometric surface of the shallow groundwater at the refinery follows the land surface (Figure 12). The presence of shallow groundwater in the area of the North Drainage Ditch and the area of monitoring wells OW-29 and OW-30 appears to be controlled by the elevation of the bedrock surface and the presence or absence of permeable sediments (sand vs. clay). Of the seven deep soil borings, including NDD-1, NDD-2 and NDD-3, completed near the North Drainage Ditch, all were drilled to the top of bedrock and were of sufficient depth to have identified the presence of saturation. Five of the deep borings encountered groundwater, with borings NDD-1 and NDD-2 encountering bedrock at a higher elevation without the presence of saturation. To the east in new wells OW-53, OW-54, and OW-55, two of the wells encountered groundwater with the northernmost well OW-53 being dry. Well OW-53 was drilled to the top of bedrock, where saturation is most

commonly encountered but since being drilled in May 2016, the well has remained dry through April 2018. The lack of saturation in OW-53 appears to be controlled by the lithology. A silty clay extends from the top of bedrock upward for 24 feet with only very minor amounts of sand and appears to be the controlling factor in the absence of saturation in this location.

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 $1.9\text{E-}05$ cm/sec (Appendix E). Permeability tests performed on soils in the area of the firewater pond indicated an average permeability of $1.1\text{E-}07$ cm/sec (Appendix E).

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 (Appendix E). A slug test performed on July 3, 1984 in well OW-4 indicated a hydraulic conductivity of $4.0\text{E-}7$ cm/sec. A pump test was performed in well OW-24 on February 20, 1985 and it yielded a hydraulic conductivity of $2.5\text{E-}7$ 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 $100\text{ ft}^2/\text{day}$ (Stone and others, 1983). Yield tests conducted at the site have shown a much lower hydraulic conductivity of $0.34\text{ ft}/\text{day}$ ($1.2\text{E-}04$ cm/sec) (Appendix E).

4.3 Exploratory Drilling Investigations, Soil Sampling and Boring Abandonment

This subsection provides a detailed description of surface and subsurface investigations to delineate impacts to surface soils and the underlying groundwater near and along the North Drainage Ditch. In addition, groundwater impacts previously observed in monitoring wells OW-29 and OW-30 were investigated to define the down-gradient extent. This includes soil field screening results, soil sampling intervals and methods for detection of surface and subsurface impacts in soils. For completeness, the following discussion includes the field work completed in May 2016 in accordance with the August 2015 *Investigation Work Plan OW-29 & OW-30 and North Drainage Ditch Areas* (DiSorbo, 2015) and the field work completed in May 2015 in response to the detections of chemicals of concern in surface water samples collected from the North Drainage Ditch. While the borings completed in May 2015 (NDD-1, NDD-2, and NDD-3) were not completed under a specific Investigation Work Plan, the drilling, soil screening, and decontamination procedures were completed in accordance with Permit Sections IV. J and IV.K and consistent with the requirements of the Investigation Work Plan for the North Drainage Ditch approved with modifications on February 23, 2016.

Discrete soil samples for laboratory analyses were scheduled for collection at the following intervals:

- 0'-0.5' (at soil borings NDD-4 through NDD-17);
- 1.5'-2.0' (at soil borings NDD-4 through NDD-17);
- >2.0' (from the interval in soil borings NDD-4 through NDD-17 with the greatest apparent degree of contamination, based on field observations and field screening);
- From the bottom of each borehole (at soil borings NDD-4 through NDD-17);
- From the 6" interval at the top of saturation (applicable only to soil borings NDD-4 through NDD-17 that reached saturation); and
- Any additional intervals as determined based on field screening results.

A description of the field screening and soil sampling procedures are presented in Appendix F – Field Methods. Copies of the boring logs are provided in Appendix G. In addition to being included on the soil boring logs, the soil vapor (i.e., headspace) screening results are summarized in Table 3. The locations of the soil borings appear on Figures 3 and 4.

4.3.1 North Drainage Ditch

Seven soil borings (three in May 2015 and four in May 2016) were advanced using the hollow-stem auger (HSA) method to the bedrock (claystone/mudstone). Ten soil borings were advanced using a hand auger to a depth of 2 feet bgl. The drilling equipment and hand auger equipment was decontaminated between each borehole, as described in Appendix F. Detailed soil boring logs are included in Appendix G. The soil boring logs describe the subsurface lithology, the presence of saturation, the field screening results, and any temporary well construction details. The installation of soil borings and collection of soil samples are discussed below in numerical order.

NDD-1

On May 11, 2015 the drilling rig was set up on location NDD-1. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No soil samples were collected for laboratory analysis from this soil boring. No petroleum hydrocarbon odor or particularly elevated PID readings were detected. The PID readings ranged from 4.1 ppm to 10.1 ppm. There was no apparent discoloration (i.e., black staining) of the soils.

The lithology encountered consisted of the following:

- Clayey Silt: 0 – 1 feet bgl (low plasticity, soft, dry to damp, reddish brown, no odor);
- Silty Clay: 1 feet bgl – 11 feet bgl (low plasticity, very stiff, dry, reddish brown, no odor);
- Sandy Clay: 11 feet bgl – 12 feet bgl (low plasticity, stiff, damp to dry, dark brown, no odor);
- Silty Clay: 12 feet bgl – 14 feet bgl (low plasticity, stiff, dry to damp, brown, no odor, calcareous);
and
- Claystone (Chinle Group- Painted Desert Member): 14 feet bgl – 20 feet bgl (low plasticity, very stiff, damp to dry, reddish purple, no odor, trace grey).

The sampling was terminated at 20 feet bgl and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-2

On May 11, 2015 the drilling rig was set up on location NDD-2. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No soil samples were collected for laboratory analysis from this soil boring. No petroleum hydrocarbon odor or particularly elevated PID

readings were detected. The PID readings ranged from 9.7 ppm to 18.0 ppm. There was no apparent discoloration (i.e., black staining) of the soils.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 4 feet bgl (low plasticity, soft to very stiff, damp to dry, reddish brown, no odor); and
- Claystone: 4 feet bgl – 20 feet bgl (low plasticity, very stiff, dry, reddish purple, no odor, trace grey).

The sampling was terminated at 20 feet bgl and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-3

On May 11, 2015 the drilling rig was set up on location NDD-3. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No soil samples were collected for laboratory analysis from this soil boring. No petroleum hydrocarbon odor or particularly elevated PID readings were detected. The PID readings ranged from 9.9 ppm to 14.4 ppm. There was no apparent discoloration (i.e., black staining) of the soils.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 6 feet bgl (low plasticity, soft to firm, damp, brown, no odor);
- Silty Clay: 6 feet bgl – 8 feet bgl (high plasticity, firm, damp, light tan and brown, black organic material, no odor);
- Clay: 8 feet bgl – 11 feet bgl (high plasticity, firm, damp, brown with a trace of light tan, no odor);
- Clayey Gravelly Sand: 11 feet bgl – 12 feet bgl (fine grain sand with sandstone gravel and a firm, low plasticity clay, moist to saturated, brown, no odor); and
- Claystone: 12 feet bgl – 16 feet bgl (very stiff, damp to dry, purple grey, no odor).

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 5 feet bgl to 15 feet bgl. On May 14, 2015 the well was gauged, purged and a water sample collected. The well casing and screen were removed and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-4

On May 23, 2016 the drilling rig was set up on location NDD-4. This boring is located in the middle of the North Drainage Ditch. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Four soil samples were collected from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 3.5 ppm;
- 1.5 feet bgl – 2 feet bgl: PID reading – 7.1ppm;
- 8 feet bgl - 10 feet bgl: Interval immediately above saturation–PID reading – 4.9 ppm; and
- 18 feet bgl - 20 feet bgl: Bottom of borehole, PID reading – 3.0 ppm.

No petroleum hydrocarbon odor or elevated PID readings were observed. The PID readings ranged from 3.0 ppm to 7.9 ppm. There was no apparent discoloration (e.g., black staining) of the soils.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 6 feet bgl (low plasticity, firm, damp, brown, no odor);
- Sandy Silty Clay: 6 feet bgl – 8 feet bgl (low plasticity, firm, damp, brown, increase in sand with depth);
- Sandy Clay: 8 feet bgl – 10 feet bgl (low, soft, damp, brown, with fine to medium grain sand in clay, sand seam from 9.5 to 9.75 feet bgl, damp, no odor);
- Sandy Clay: 10 feet bgl – 12 feet bgl (low plasticity, soft, moist to saturated, medium to coarse grain sand, brown, no odor);
- Sandy Gravel: 12 feet bgl – 15.75 feet bgl (very coarse grain sand and ¼-inch gravel, saturated, brown, no odor); and
- Claystone: 15.75 feet bgl – 20 feet bgl (stiff to very stiff, dry, reddish purple and grey grading to brown, no odor).

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 7 feet bgl to 17 feet bgl. On May 25, 2016 the well was gauged, developed, and purged. The water sample was collected on May 26, 2016. On May 27, 2016 the well casing and screen were removed and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-5

On May 19, 2016 sample collection at NDD-5 was accomplished using a hand auger. This boring is located in the middle of the North Drainage Ditch and approximately 175 feet west of NDD-4. Two soil samples and one duplicate soil sample were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 6.5 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 339 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silt from 0 to 2 feet bgl. This low plasticity silt was soft, damp and exhibited an odor, which was not recognizable, at the base. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-6

NDD-6 was proposed to be located in the middle of the North Drainage Ditch as a temporary monitoring well in addition to a soil boring for collection of soil samples. This boring is approximately 130 feet northwest of NDD-5. The proposed location in the middle of the ditch was too wet to mobilize the drilling rig to the location. It was therefore decided to advance one shall soil boring (NDD-6A) in the ditch using a hand auger and one soil boring (NDD-6) outside of the ditch using the HSA drilling method and split spoon samplers.

NDD-6A

On May 23, 2016, a hand auger was used to collect the following samples from a location near the center of the ditch to assess lateral flow of surface water along the ditch and any potentially related impacts:

- 0 – 0.5 feet bgl: PID reading – 8.8 ppm; and
- 1.5 feet bgl – 2 feet bgl: PID reading – 1639 ppm.

The lithology encountered consisted of a low plastic, soft, damp to wet, silty clay from 0 to 2 feet bgl. The silty clay exhibited an odor, which was not recognizable. Two soil samples were submitted to the lab as NDD-6 (0 – 0.5') and NDD-6 (1.5 – 2').

NDD-6

Pursuant to comments received from NMED, the soil boring was then continued by locating the drilling rig approximately 15 feet north of the ditch and sample collection was accomplished using the HSA drilling method and split spoon samplers. Two soil samples were collected from the following intervals:

- 4 feet bgl - 6 feet bgl: Elevated PID reading – 1780 ppm; and
- 10 feet bgl - 12 feet bgl: Bottom of borehole, PID reading – 17.9 ppm.

Petroleum hydrocarbon odor and elevated PID readings were observed in the near surface soils within the ditch and in deeper soils outside the ditch. Deeper soil samples were collected from the interval with the highest PID reading and the bottom of borehole.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 6 feet bgl (low plasticity, soft, damp, no odor. At 4 feet bgl to 6 feet bgl the soil had an oily appearance and exhibited an odor);
- Clayey Gravel: 6 feet bgl – 10 feet bgl (loose, saturated, black, ¼-inch to ½-inch gravel); and
- Claystone: 10 feet bgl – 12 feet bgl (very stiff, dry, reddish purple and grey, faint hydrocarbon odor to no odor).

A temporary well was constructed of 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. On May 25, 2016 the well was gauged, developed, and purged. The water sample was collected on May 26, 2016. On May 27, 2016 the well casing and screen were removed and the borehole was grouted to the land surface using a cement/bentonite mixture.

Approximately 145 feet due northwest of NDD-6 are three boring locations NDD-7 (north of ditch), NDD-8 (middle of ditch), and NDD-9 (south of ditch).

NDD-7

NDD-7 is located north of the ditch approximately 15 feet northeast of NDD-8. On May 19, 2016 sample collection at NDD-7 was accomplished using a hand auger. Two soil samples were collected from the following depths:

-
-
- 0 – 0.5 feet bgl – PID reading of 3.3 ppm; and
 - 1.5 feet bgl – 2 feet bgl – PID reading of 9.4 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp and did not exhibit an odor. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-8

NDD-8 is located in the middle of the ditch approximately 15 feet northeast of NDD-9 and 15 feet southwest of NDD-7. On May 19, 2016 sample collection at NDD-8 was accomplished using a hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 11.3 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 904 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp to moist/oily and exhibited a hydrocarbon odor. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-9

NDD-9 is located south of the ditch approximately 15 feet southwest of NDD-8. On May 19, 2016 sample collection at NDD-9 was accomplished using a hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 18.5 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 1530 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp to moist/oily and exhibited a hydrocarbon odor at the base. The borehole was backfilled with bentonite pellets and hydrated with potable water.

Approximately 180 feet due northwest of NDD-7, NDD-8 and NDD-9 are three boring locations NDD-10 (north of ditch), NDD-11 (middle of ditch), and NDD-12 (south of ditch).

NDD-10

NDD-10 is located north of the ditch approximately 15 feet northeast of NDD-11. On May 19, 2016 sample collection at NDD-10 was accomplished using a hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 8.8 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 12.3 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp, brown and did not exhibit an odor. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-11

NDD-11 is located in the middle of the ditch approximately 15 feet southwest of NDD-10 and 15 feet northeast of NDD-12. On May 23, 2016 the drilling rig was set up on location NDD-11. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Three soil samples and a duplicate soil sample were collected from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 3.2 ppm;
- 1.5 feet bgl – 2 feet bgl: Duplicate collected - PID reading – 4.6 ppm; and
- 12 feet bgl - 14 feet bgl: Bottom of borehole, PID reading – 21.2 ppm.

The lithology encountered consisted of the following:

- Gravelly Silty Clay: 0 – 2 feet bgl (low plasticity, soft, brown, damp, no odor);
- Sandy Clay: 2 feet bgl – 4 feet bgl (low plasticity, soft, brown, very moist to saturated, hydrocarbon odor);
- Clayey Sand: 4 feet bgl – 8 feet bgl (fine to medium grain, loose, black, hydrocarbon odor, saturated);

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-
- Silty Sand: 8 feet bgl – 10 feet bgl (fine to medium grain, loose, saturated, brown, hydrocarbon odor – clay at base); and
 - Claystone: 10 feet bgl – 14 feet bgl (very stiff, dry, reddish purple and grey, no odor).

A temporary well was constructed of 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. On May 25, 2016 the well was gauged and developed. The water sample was collected on May 26, 2016. On May 27, 2016 the well casing and screen were removed and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-12

NDD-12 is located south of the ditch approximately 15 feet southwest of NDD-11. On May 19, 2016 sample collection at NDD-12 was accomplished using a hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 8.9 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 66.4 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silt from 0 - 2 feet bgl. This low plasticity silt was soft, damp, and exhibited a hydrocarbon odor at the base. The borehole was backfilled with bentonite pellets and hydrated with potable water.

Approximately 185 feet due northwest of NDD-10, NDD-11 and NDD-12 are three boring locations NDD-13 (north of ditch), NDD-14 (middle of ditch), and NDD-15 (south of ditch).

NDD-13

NDD-13 is located north of the ditch approximately 15 feet northeast of NDD-14. On May 19, 2016 sample collection at NDD-13 was accomplished using a hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 5.6 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 8.0 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp, brown, and did not exhibit an odor. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-14

NDD-14 is located in the middle of the ditch approximately 15 feet southwest of NDD-13 and 15 feet northeast of NDD-15. On May 19, 2016 sample collection at NDD-14 was accomplished using the hand auger. Two soil samples were collected from the following depths:

- 0 - 0.5 feet bgl - PID reading of 5.7 ppm; and
- 1.5 feet bgl - 2 feet bgl - PID reading of 1.6 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was soft, damp to moist, brown, and did not exhibit an odor. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-15

NDD-15 is located approximately 15 feet southwest of NDD-14. On May 19, 2016 sample collection at NDD-15 was accomplished using a hand auger. Two soil samples and one duplicate soil sample were collected from the following depths:

- 0 - 0.5 feet bgl - PID reading of 7.1 ppm; and
- 1.5 feet bgl - 2 feet bgl - PID reading of 6.3 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was firm, damp to moist, brown, and did not exhibit an odor at the base. The borehole was backfilled with bentonite pellets and hydrated with potable water.

NDD-16

NDD-16 is located approximately 115 feet northwest of soil boring locations NDD-13, NDD-14, and NDD-15. The boring is located on the north side of the ditch. On May 24, 2016 the drilling rig was set up on location NDD-16. Sample collection was accomplished using the HSA drilling method and split spoon samplers. Four soil samples were collected from the following intervals:

- 0 – 0.5 feet bgl: PID reading – 5.1 ppm;
- 1.5 feet bgl – 2 feet bgl: PID reading – 14.3 ppm;
- 14 feet bgl – 16 feet bgl: Interval immediately above saturation - PID reading–12.9 ppm; and
- 22 feet bgl - 24 feet bgl: Bottom of borehole, PID reading – 4.2 ppm.

The lithology encountered consisted of the following:

- Clay: 0 – 14 feet bgl (high plasticity, stiff, brown, damp, no odor);
- Silty Clay: 14 feet bgl – 16 feet bgl (low plasticity, soft, brown, damp, no odor);
- Gravelly Sandy Clay: 16 feet bgl – 19.75 feet bgl (low plasticity, firm, very moist to saturated in sand seams, brown, no odor); and
- Claystone: 19.75 feet bgl – 24 feet bgl (very dense, damp to dry, trace very fine grain sand, brown and grey, no odor).

A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 12 feet bgl to 22 feet bgl. On May 25, 2016 the well was gauged and developed. The water sample was collected on May 26, 2016. On May 27, 2016 the well casing and screen were removed and the borehole was grouted to the land surface using a cement/bentonite mixture.

NDD-17

NDD-17 is located approximately 75 feet northwest of NDD-16. On May 19, 2016 sample collection at NDD-17 was accomplished using the hand auger. Two soil samples were collected from the following depths:

- 0 – 0.5 feet bgl – PID reading of 4.5 ppm; and
- 1.5 feet bgl – 2 feet bgl – PID reading of 9.8 ppm.

Soil samples were collected in the appropriate sample containers, sealed in sealable bags, and immediately placed in an ice chest containing ice. The lithology encountered consisted of silty clay from 0 - 2 feet bgl. This low plasticity clay was firm, damp, brown, and did not exhibit an odor at the base. The borehole was backfilled with bentonite pellets and hydrated with potable water.

4.3.2 Downgradient of OW-14, OW-29, and OW-30

Four soil borings were advanced using the hollow-stem auger (HSA) method. The drilling equipment and hand auger equipment was decontaminated between each borehole, as described in Appendix F. Detailed soil boring logs are included in Appendix G. The soil boring logs describe the subsurface lithology, the presence of saturation, the field screening results, and well construction details. The installation of soil borings and collection of soil samples are discussed below in numerical order.

OW-53

On May 26, 2016 the drilling rig was set up on location OW-53. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No petroleum hydrocarbon odor or particularly elevated PID readings were detected. The PID readings ranged from 2.1 ppm to 9.9 ppm. There was no apparent discoloration (e.g., black staining) of the soils. No soil samples were collected from the boring for analysis.

The lithology encountered consisted of the following:

- Silt: 0 – 2 feet bgl (low plasticity, soft, damp, brown, no odor);
- Silty Clay: 2 feet bgl – 4 feet bgl (low plasticity, very stiff, damp, brown, no odor);
- Silty Sand: 4 feet bgl – 6 feet bgl (fine to medium grain, dry, brown, no odor);
- Silty Clay: 6 feet bgl – 24 feet bgl (low plasticity, very stiff, damp, brown, no odor);
- Silty Clay: 24 feet bgl – 26 feet bgl (low plasticity, very stiff, damp, brown, no odor – becomes sandy at base, light tan silt present);
- Silty Clay: 26 feet bgl – 28 feet bgl (low plasticity, very stiff, dry to damp, brown, no odor – light tan silt seams and occasional fine grain sand seam);
- Silty Clay: 28 feet bgl – 30 feet bgl (low plasticity, very stiff, brown, damp, no odor, calcareous);
and
- Claystone: 30 feet bgl – 34 feet bgl (very stiff, dry, reddish purple grading to pink, no odor).

A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 16 feet bgl to 31 feet bgl. Filter pack sand was installed to a depth of 14 feet bgl. A bentonite seal was installed to 10.5 feet bgl. The annular seal (bentonite grout) was installed on May 31, 2016. The surface completion and bollards were installed on May 31, 2016.

OW-54

On May 26, 2016 the drilling rig was set up on location OW-54. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No petroleum hydrocarbon odor was exhibited from 0 to 14 feet bgl. The PID readings ranged from 4.5 ppm to 13.6 ppm in the 0 – 14 feet bgl interval. A hydrocarbon odor became evident below 14 feet bgl. One soil sample was collected from the 14 feet bgl to 16 feet bgl interval. This interval was immediately above saturation found within a sand seam present in a sandy clay. The PID reading was 216 ppm. Elevated PID readings were observed to a depth of 22 feet bgl.

The lithology encountered consisted of the following:

- Silt: 0 – 4 feet bgl (low plasticity, firm, damp, brown, no odor);
- Silty Clay: 4 feet bgl – 8 feet bgl (low plasticity, very stiff, damp, brown, no odor);
- Sandy Silty Clay: 8 feet bgl – 10 feet bgl (low plasticity, very stiff, brown, damp, fine to coarse grain sand, no odor);
- Silty Clay: 10 feet bgl – 14 feet bgl (low plasticity, very stiff, brown, damp, no odor);
- Silty Clay: 14 feet bgl – 16 feet bgl (low plasticity, soft, dark brown with black streaks, damp to moist to very moist at 16 feet bgl in a sand seam, hydrocarbon odor);
- Sandy Clay: 16 feet bgl – 20 feet bgl (low plasticity, soft, brown, moist to saturated in fine to medium grain sand seams, strong hydrocarbon odor);
- Silty Clay: 20 feet bgl – 22 feet bgl (low plasticity, soft, brown, damp, faint hydrocarbon odor, calcareous); and
- Sandy Clay: 22 feet bgl – 30 feet bgl (low plasticity, soft, moist to saturated, brown, faint hydrocarbon odor, gravel present from 24 feet bgl to 26 feet bgl and 28 feet bgl to 30 feet bgl).

A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 13 feet bgl to 28 feet bgl. Filter pack sand was installed to a depth of 11 feet bgl. A bentonite seal was installed to 7 feet bgl. The annular seal

(bentonite grout) was installed on June 1, 2016. The surface completion and bollards were installed on June 1, 2016.

OW-55

On May 24, 2016 the drilling rig was set up on location OW-55. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No petroleum hydrocarbon odor was exhibited from 0 to 16 feet bgl. The PID readings ranged from 9.4 ppm to 19.2 ppm in the 0 – 16 feet bgl interval. A hydrocarbon odor became evident below 16 feet bgl. One soil sample was collected from 16 feet bgl to 19 feet bgl interval. This interval was immediately above saturation found within a silty sand. The PID reading was 2,530 ppm. Elevated PID readings were observed to the termination depth of 32 feet bgl.

The lithology encountered consisted of the following:

- Silt: 0 – 3 feet bgl (low plasticity, soft, dry, brown, no odor);
- Silty Clay: 3 feet bgl – 16 feet bgl (low plasticity, very stiff, damp, brown, no odor – silt and very fine grain sand present, gravel present from 14 feet bgl to 16 feet bgl);
- Silty Clay: 16 feet bgl – 18.25 feet bgl (low plasticity, soft, damper than above, brown, hydrocarbon odor);
- Silty Sand: 18.25 feet bgl – 19 feet bgl (fine to medium grain, loose, brown, saturated, strong hydrocarbon odor);
- Silty Clay: 19 feet bgl – 20 feet bgl (low plasticity, soft, moist to very moist, brown, hydrocarbon odor);
- Gravelly Sandy Clay: 20 feet bgl – 22 feet bgl (low plasticity, very soft, very moist to saturated, brown, strong hydrocarbon odor – greenish yellow gravel present);
- Sandy Clay: 22 feet bgl – 24 feet bgl (low plasticity, soft, moist to saturated in sand seams, hydrocarbon odor);
- Silty Clay: 24 feet bgl – 26 feet bgl (low plasticity, soft, damp, hydrocarbon odor);
- Sandy Silty Clay: 26 feet bgl – 28 feet bgl (low plasticity, soft, saturated to very moist in sand seams, brown, hydrocarbon odor); and
- Clay: 28 feet bgl to 32 feet bgl (moderate to high plasticity, stiff, damp, brown, hydrocarbon odor).

A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 13 feet bgl to 28 feet bgl. Filter pack sand was installed to a depth of 11 feet bgl. A bentonite seal was installed to 9 feet bgl. The annular seal (bentonite grout) was installed on June 1, 2016. The surface completion and bollards were installed on June 1, 2016.

OW-56

On May 24, 2016 the drilling rig was set up on location OW-56, which is located near earlier soil boring/temporary well NDD-3. Sample collection was accomplished using the HSA drilling method and split spoon samplers. No soil samples were collected from the boring for chemical analysis. No petroleum hydrocarbon odor or particularly elevated PID readings were detected. The PID readings ranged from 8.3 ppm to 19.1 ppm. There was no apparent discoloration (i.e., black staining) of the soils.

The lithology encountered consisted of the following:

- Silty Clay: 0 – 4 feet bgl (low plasticity, soft, damp, brown, no odor);
- Silty Clay: 4 feet bgl – 8 feet bgl (moderate plasticity, firm, damp, brown, no odor – sand/gravel seam at 7.5 feet bgl to 7.75 feet bgl);
- Clay: 8 feet bgl – 12 feet bgl (high plasticity, firm, brown, damp, no odor – trace light tan silt);
- Gravelly Sandy Clay: 12 feet bgl – 14 feet bgl (low plasticity, firm, moist, no odor, brown, yellowish green sandstone gravel present); and
- Claystone: 14 feet bgl to 16 feet bgl (very stiff, damp to dry, brown, purple and grey, no odor).

A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 6 feet bgl to 16 feet bgl. Filter pack sand was installed to a depth of 4 feet bgl. A bentonite seal was installed to 2 feet bgl. The annular seal (bentonite grout) was installed on June 1, 2016. The surface completion and bollards were installed on June 1, 2016.

4.4 Well Construction and Groundwater Sampling

4.4.1 North Drainage Ditch

Groundwater samples were collected from four temporary well completions in the May 2016 sampling event and one temporary well (NDD-3) during the earlier May 2015 event. The following list provides a brief summary of the well development and groundwater sample collection activities:

- NDD-3; purged and sampled; yielded enough water for VOCs, SVOCs, and GRO analyses;
- NDD-4; developed and sampled; yielded enough water for a full analytical suite;
- NDD-6; developed and sampled; yielded enough water for a full analytical suite;
- NDD-11; developed and sampled; yielded enough water for a full analytical suite; duplicate groundwater sample DUP01-GW was collected at this location; and
- NDD-16; developed and sampled; yielded enough water for a full analytical suite.

The drilling equipment was decontaminated between each borehole, as described in Appendix F. The well development and purging is also discussed in Appendix F. The installation of the temporary wells and collection of groundwater samples are discussed below in numerical order for the samples collected near the North Drainage Ditch.

NDD-3

On May 11, 2015 the drilling rig was set up on location NDD-3. The boring was installed using the HSA drilling method. Groundwater was encountered at approximately 11 feet bgl in a clayey gravelly sand. A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 5 feet bgl to 15 feet bgl to include the sand interval at a depth of 11 feet bgl to 12 feet bgl that indicated the presence of saturation. The screen extends downward to the top of the bedrock to also potentially encounter any groundwater on top of the bedrock surface. A sand filter pack was installed to approximately 3 feet bgl. A bentonite seal was installed to approximately 1.5 feet bgl. The top of casing was approximately 2.83 feet above ground level.

On May 14, 2015 the well was gauged. The depth to water was 10.52 feet below the top of casing (btoc). The groundwater level was approximately 7.69 feet bgl. Approximately 4.5 gallons of groundwater were developed/purged from the well. The purge water was turbid. The well was sampled on May 14, 2015 and yielded enough water to collect samples for total petroleum

hydrocarbon (GRO), VOCs, and SVOCs analyses. All purge water was disposed at the bundle cleaning pad on May 14, 2015. On May 14, 2015 the well casing and screen were removed and the borehole was grouted.

NDD-4

On May 23, 2016 the drilling rig was set up on location NDD-4. The boring was installed using the HSA drilling method. Groundwater was encountered in sandy clay (10 feet bgl – 12 feet bgl) and sandy gravel (12 feet bgl – 15.75 feet bgl). A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 7 feet bgl to 17 feet bgl to cover the length of the saturated interval. The screen also extended to the top of bedrock to encounter any groundwater accumulating on this surface. A filter pack was installed to approximately 6 feet bgl. A bentonite seal was installed to approximately 5 feet bgl. The top of casing was approximately 2.29 feet above ground level.

On May 25, 2016 the well was gauged. The depth to water was 13.72 feet btoc. The groundwater level was approximately 11.43 feet bgl. The well was purged dry after approximately 2.5 gallons of groundwater was removed. The purge water was cloudy and did not exhibit an odor. All purge water was disposed at the bundle cleaning pad.

On May 26, 2016 the well was gauged and the depth to water was 13.72 feet btoc/11.43 feet bgl. The well yielded enough groundwater to collect samples (NDD-4-GW) for a full analytical suite.

On May 27, 2016 the well casing and screen were removed and the borehole was grouted.

NDD-6

On May 23, 2016 the drilling rig was set up on location NDD-6. The boring was installed using the HSA drilling method. Groundwater was encountered in clayey gravel (6 feet bgl – 10 feet bgl). A temporary well was constructed of 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 to cover the length of the saturated interval. The screen also extended to the top of bedrock to encounter any groundwater accumulating on this surface. A filter pack was installed to approximately ground level. The top of casing was approximately 2.25 feet above ground level.

On May 25, 2016 the well was gauged. The depth to water was 4.05 feet btoc. The groundwater level was approximately 1.80 feet bgl. The well was purged dry after approximately 12 gallons of

groundwater was removed. The purge water was cloudy and exhibited a hydrocarbon odor. All purge water was disposed at the bundle cleaning pad.

On May 26, 2016 the well was gauged and the depth to water was 4.05 feet btoc/1.80 feet bgl. The well yielded enough groundwater to collect samples (NDD-6-GW) for a full analytical suite.

On May 27, 2016 the well casing and screen were removed and the borehole was grouted.

NDD-11

On May 23, 2016 the drilling rig was set up on location NDD-11. The boring was installed using the HSA drilling method. Groundwater was encountered in sandy clay (2 feet bgl – 4 feet bgl), clayey sand (4 feet bgl to 8 feet bgl) and silty sand (8 feet bgl – 10 feet bgl). A temporary well was constructed of 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 to cover the length of the saturated interval. The screen also extended to the top of bedrock to encounter any groundwater accumulating on this surface. A filter pack was installed to approximately to ground surface. The top of casing was approximately 2.25 feet above ground level.

On May 25, 2016 the well was gauged. The depth to water was 5.43 feet btoc. The groundwater level was approximately 3.18 feet bgl. Approximately 20 gallons of groundwater was purged from the well. The depth to groundwater after purging was 6.45 feet btoc/4.20 feet bgl. The purge water was cloudy and exhibited a hydrocarbon odor. All purge water was disposed at the bundle cleaning pad.

On May 26, 2016 the well was gauged and the depth to water was 5.45 feet btoc/3.20 feet bgl. The well yielded enough groundwater to collect samples (NDD-11-GW) for a full analytical suite. Duplicate groundwater sample DUP01-GW was collected at this well.

On May 27, 2016 the well casing and screen were removed and the borehole was grouted.

NDD-16

On May 24, 2016 the drilling rig was set up on location NDD-16. The boring was installed using the HSA drilling method. Groundwater was encountered in gravelly sandy clay (16 feet bgl – 18 feet bgl). A temporary well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 12 feet bgl to 22 feet bgl to cover the length of the

saturated interval. The screen also extended to the top of bedrock to encounter any groundwater accumulating on this surface. A filter pack was installed to approximately 10 feet bgl. A bentonite seal was installed to approximately 9 feet bgl. The top of casing was approximately 2.25 feet above ground level.

On May 25, 2016 the well was gauged. The depth to water was 16.58 feet btoc. The groundwater level was approximately 14.33 feet bgl. The well was purged dry after approximately 5 gallons of groundwater was removed. The purge water was cloudy and did not exhibit an odor. All purge water was disposed at the bundle cleaning pad.

On May 26, 2016 the well was gauged and the depth to water was 16.60 feet btoc/14.35 feet bgl. The well yielded enough groundwater to collect samples (NDD-16-GW) for a full analytical suite.

On May 27, 2016 the well casing and screen were removed and the borehole was grouted.

4.4.2 Downgradient of OW-14, OW-29, and OW-30

Groundwater samples were collected from three permanent well completions. The following list provides a brief summary of the well development and groundwater sample collection activities:

- OW-53; dry;
- OW-54; developed and sampled; yielded enough water for a full analytical suite;
- OW-55; developed and sampled; yielded enough water for a full analytical suite; and
- OW-56; developed and sampled; yielded enough water for total petroleum hydrocarbon (DRO, MRO, GRO), volatile organics and semivolatile organics analyses.

The drilling equipment was decontaminated between each borehole, as described in Appendix F. The well development and purging is also discussed in Appendix F. The measurement of field purging parameters included measurement of groundwater pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. The results of the measurements are included in Table 4 and fluid levels measured prior to purging are also presented in Table 4. The installation of the permanent wells and collection of groundwater samples are discussed below in numerical order for the samples collected.

OW-53

On May 26, 2016 the drilling rig was set up on location OW-53. The boring was installed using the HSA drilling method. Groundwater was not encountered. A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 16 feet bgl to 31 feet bgl. The screen was placed from the top of bedrock to encounter any groundwater accumulating on this surface and upward through a silty clay that did not indicate presence of saturation. A 10/20 filter pack was installed to approximately 14 feet bgl. A bentonite seal was installed to approximately 10.5 feet bgl and hydrated with potable water. Bentonite grout was installed on top of the bentonite seal. The surface completion consists of a stickup completion, with includes a protective steel cover secured in a concrete pad. The protective steel cover is equipped with a lid that is locked. Bollards were installed around the concrete pad.

OW-53 was gauged on May 27, 2016 and May 31, 2016. No groundwater was detected in the monitor well. During the third quarterly facility-wide groundwater sampling event, the well was gauged on September 15, 2016 and there was no water present in the well. No water was present when the well was gauged on November 8, 2016 during the fourth quarterly facility-wide groundwater sampling event. The well was most recently checked in April 2018 and was still dry.

OW-54

On May 25, 2016 the drilling rig was set up on location OW-54. The boring was installed using the HSA drilling method. Groundwater was encountered in sand seams within sandy clay (16 feet bgl – 20 feet bgl) and in sandy clay (22 feet bgl to 30 feet bgl). A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 13 feet bgl to 28 feet bgl. The screen was set three feet above saturated sand seams observed in sandy clay that was encountered from 16 feet bgl to 20 feet bgl. The screen was extended to 28 feet bgl in order to screen across the moist to saturated sandy clay. The screen does not intercept the top of the bedrock.

A 10/20 filter pack was installed to approximately 11 feet bgl. A bentonite seal was installed to approximately 7 feet bgl and hydrated with potable water. Bentonite grout was installed on top of the bentonite seal. The surface completion consists of a stickup completion, with includes a protective steel cover secured in a concrete pad. The protective steel cover is equipped with a lid that is locked. Bollards were installed around the concrete pad.

On May 31, 2016 OW-54 was gauged. The depth to water was 18.70 feet btoc (16.45 feet bgl). The well was developed with a submersible pump. The pump was decontaminated prior to development. New tubing was used. Approximately 45 gallons of water was removed. The water was cloudy and exhibited a hydrocarbon odor. The well development was completed on May 31, 2016 at 12:15. All development water was disposed at the bundle cleaning pad.

On June 1, 2016 the well was gauged and the depth to water was 18.78 feet btoc (16.53 feet bgl). The well yielded enough groundwater to collect samples for a full analytical suite.

OW-55

On May 24, 2016 the drilling rig was set up on location OW-55. The boring was installed using the HSA drilling method. Groundwater was encountered in the following intervals:

- Silty sand (18.5 feet bgl – 19 feet bgl);
- Silty clay (19 feet bgl to 20 feet bgl);
- Gravelly sandy clay (20 feet bgl to 22 feet bgl);
- Sandy clay (22 feet bgl to 24 feet bgl); and
- Sandy silty clay (26 feet bgl to 28 feet bgl).

A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 13 feet bgl to 28 feet bgl. The top of the well screen was set in the bottom five feet of a silty clay where gravel was present. Although the sediment was not saturated, the moisture content appeared to be increasing from 14 feet bgl to 18.5 feet bgl. The screen extended across the following intervals where groundwater was encountered:

- Silty sand (18.5 feet bgl – 19 feet bgl);
- Silty clay (19 feet bgl to 20 feet bgl);
- Gravelly sandy clay (20 feet bgl to 22 feet bgl);
- Sandy clay (22 feet bgl to 24 feet bgl); and
- Sandy silty clay (26 feet bgl to 28 feet bgl).

The bottom of the screen was placed immediately above a damp brown clay. The screen does not intercept the top of the bedrock.

A 10/20 filter pack was installed to approximately 11 feet bgl. A bentonite seal was installed to approximately 9 feet bgl and hydrated with potable water. Bentonite grout was installed on top of the bentonite seal. The surface completion consists of a stickup completion, with includes a protective steel cover secured in a concrete pad. The protective steel cover is equipped with a lid that is locked. Bollards were installed around the concrete pad.

On May 31, 2016 OW-55 was gauged. The depth to water was 18.83 feet btoc (16.83 feet bgl). The well was developed with a submersible pump. The pump was decontaminated prior to development. New tubing was used. Approximately 42.5 gallons of water was removed. The water was cloudy and exhibited a hydrocarbon odor. The well development was completed on May 31, 2016 at 10:55. All development water was disposed at the bundle cleaning pad.

On June 1, 2016 the well was gauged and the depth to water was 18.83 feet btoc (16.83 feet bgl). The well yielded enough groundwater to collect samples for a full analytical suite. A duplicate groundwater sample was collected from this well (DUP01-GW-OW).

OW-56

On May 24, 2016 the drilling rig was set up on location OW-56. The boring was installed using the HSA drilling method. Groundwater was encountered in gravelly sandy clay (12 feet bgl to 14 feet bgl). A permanent well was constructed of 2-inch Schedule 40 PVC screen and casing. The well was installed with the screened interval ranging from 6 feet bgl to 16 feet bgl. Although saturated sediments were not observed in the sand/gravel seam at 7.5 feet bgl to 7.75 feet bgl during the drilling activities, the top of the screen was placed at six feet to intercept the potential occurrence of groundwater in the sand/gravel seam at 7.5 feet bgl to 7.75 feet bgl. The screen was extended across a saturated gravelly sandy clay (12 feet to 14 feet bgl). The screen intercepted the top of bedrock at 14 feet bgl and extended to a depth of 16 feet bgl.

A 10/20 filter pack was installed to approximately 4 feet bgl. A bentonite seal was installed to approximately 2 feet bgl and hydrated with potable water. Bentonite grout was installed on top of the bentonite seal. The surface completion consists of a stickup completion, with includes a protective steel cover secured in a concrete pad. The protective steel cover is equipped with a lid that is locked. Bollards were installed around the concrete pad.

On May 31, 2016 OW-56 was gauged. The depth to water was 16.22 feet btoc (13.97 feet bgl). The well was developed with a disposable bailer and rope. The well was developed with 3 gallons of

water being removed before the well became dry. The water was clear and did not exhibit an odor. The well development was completed on May 31, 2016 at 09:45. All development water was disposed at the bundle cleaning pad.

On June 1, 2016 the well was gauged and the depth to water was 17.00 feet btoc (14.75 feet bgl). The well yielded enough groundwater to collect a sample for TPH, VOCs and SVOCs 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 2017 and in the Environmental Protection Agency's (EPA) Regional Screening Levels dated June 2017.

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 5. Table 5 also provides a list of the available NMED and EPA soil screening levels for non-residential properties. While Table 5 indicates the various depths to which the individual soil screening levels are applicable, Table 7 discussed below does not include this level of detail.

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 WQCC 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 6 presents the groundwater cleanup levels, with the applicable cleanup level bolded.

The aforementioned Table 5 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. Since groundwater is already affected by contaminants, use of DAF is irrelevant because soil contaminants have affected groundwater and the screening levels are not carried into Table 7.

The screening levels that are compared to individual soil sample results are presented in Table 7. The screening levels included in Table 7 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 7 have not been segregated based on depth of the soil sample as discussed above for Table 5. The screening levels that are compared to individual groundwater sample results are presented in Table 8.

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 7, 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, 2017).

As there could have been a variety of petroleum types (e.g., various refined products) placed in potential source areas [e.g., the Refinery Tank Farm (SWMU No. 6)], 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.

Some of the individual constituents reported by the laboratory do not have screening levels but were all non-detect with respect to soil, except 4-isopropyltoluene. With respect to groundwater, there were also detections of constituents that do not have screening levels. The constituents detected in groundwater that do not have screening levels include, 4-isopropyltoluene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, carbazole, and di-n-octyl phthalate. None of these constituents are classified as a known carcinogen.

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
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
Nickel	SW-846 Method 6010B

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

The analytical results for soil samples collected at the North Drainage Ditch and wells OW-54 and OW-55 are summarized in Table 7. The individual results that exceed the applicable cleanup levels are highlighted, 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 13 through 17. The concentrations shown on figures that exceed the screening levels in Table 7 are underlined on the figures. The laboratory analytical reports are included in Appendix H and the data validation of the results, which includes the analytical results for the associated QA/QC samples, is included in Appendix I. The constituents that have concentrations in soils above screening levels are discussed below.

Arsenic was detected at a concentration (21 mg/kg) that exceeds the residential soil screening level of 7.07 mg/kg in one soil sample [NDD-5 (0-0.5')]. The concentrations are shown on Figure 13. The detected concentrations range from 2.1 mg/kg to 21 mg/kg.

There are 16 soil samples [NDD-6 (0-0.5') – (soil boring NDD-6A), NDD-6 (4-6'), NDD-6 (10-12'), NDD-7 (1.5-2'), NDD-8 (0-0.5'), NDD-11 (0.0-0.5'), NDD-11 (1.5-2'), NDD-11 (12-14'), NDD-12 (1.5-2'), NDD-14 (1.5-2'), NDD-15 (0-0.5'), NDD-15 (1.5-2'), NDD-16 (0-0.5'), NDD-16 (1.5-2'), NDD-16 (14-16'), and NDD-16 (22-24')] with concentrations of manganese ranging from 480 mg/kg to 1,600 mg/kg, which exceeded the non-residential (i.e., construction worker) screening level of 464 mg/kg as indicated with highlighting in Table 7. The concentrations are shown on Figure 14. All sample results are less than the residential soil screening level of 10,500 mg/kg. Currently, there is no information available on the concentrations of manganese that may be present in the crude oil stored and processed at the refinery.

Gasoline Range Organics (GRO) were detected at concentrations above the residential screening level of 1,000 mg/kg (unknown oil) in one soil sample [NDD-8 (1.5-2')] with a concentration of 1,900 mg/kg, as indicated in Table 7. The detected concentrations range from 0.061 mg/kg to 1,900 mg/kg. The concentrations are plotted on Figure 15. All sample results are less than the non-residential soil screening level of 3,800 mg/kg.

Diesel Range Organics (DRO) were detected at concentrations above the residential soil screening level of 1,000 mg/kg in five soil samples [NDD-5 (1.5-2'), NDD-6 (1.5-2')-(soil boring NDD-6A), NDD-6 (4-6'), NDD-8 (1.5-2'), and NDD-9 (1.5-2')] as indicated with highlighting in Table 7. Four of these samples [NDD-5 (1.5-2'), NDD-6 (1.5-2'), NDD-6 (4-6'), and NDD-8 (1.5-2')] have concentrations above the non-residential screening level of 3,800 mg/kg. The detected concentrations range from 8.3 mg/kg to 27,000 mg/kg. The concentrations are plotted on Figure 16.

Motor Oil Range Organics (MRO) were detected at concentrations above the residential soil screening level of 1,000 mg/kg in two soil samples [NDD-5 (1.5-2') and OW-55 (16-18')] at concentrations of 19,000 mg/kg and 3,100 mg/kg, respectively. Only the sample collected at NDD-5 (1.5-2') had a concentration (19,000 mg/kg) above the non-residential screening level of 3,800 mg/kg. The detected concentrations range from 360 mg/kg to 19,000 mg/kg. The concentrations are plotted on Figure 17.

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

Analyte	Analytical Method
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 9012B
Mercury	SW-846 Method 245.1

In addition, groundwater samples were analyzed for chloride, fluoride, and sulfate using EPA method 300.

The analytical results and the applicable cleanup levels are presented in Table 8. In addition to the analyses conducted under the approved Investigation Work Plan, analyses of groundwater samples collected on similar dates for OW-14, OW-29, OW-30, OW-50, and OW-52 are included in Table 8 to provide a comprehensive data set for groundwater analyses in the area north of the refinery tank farm. 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 18 through 22, with the concentrations that exceed the screening levels underlined. The laboratory analytical reports are included in Appendix H. The results for the associated QA/QC samples and the data validation are provided in Appendix I. The constituents with reported concentrations that exceed screening levels are discussed below.

Total arsenic was detected above the screening level of 10 micrograms per liter (ug/l) in two of the samples collected at NDD-4 and NDD-11 at concentrations of 20 ug/l and 23 ug/l, respectively. The detected total arsenic concentrations range from 0.96 ug/l to 23 ug/l. One sample (NDD-11) had a dissolved arsenic concentration above the screening level at 23 ug/l, with dissolved detections running from 0.86 ug/l to 23 ug/l. The dissolved analyses are shown on Figure 18 and total analyses on Figure 19.

For the total analyses, barium was detected above the screening level of 2,000 ug/l in four of the samples collected, including NDD-4, NDD-6, NDD-11, and OW-55 with concentrations of 5,300 ug/l, 5,400 ug/l, 4,800 ug/l, and 3,200 ug/l, respectively. Total barium was also detected above the screening level in the August 31, 2016 sample collected at OW-14 at 2,100 ug/l. The total analyses range from 32 ug/l to 5,400 ug/l. For the dissolved analyses, barium was detected above the screening level in two of the samples collected, including NDD-6 and NDD-11 with concentrations of 5,600 ug/l, and 3,500 ug/l, respectively. Dissolved barium was also detected above the screening level in the August 31, 2016 sample collected at OW-14 at 2,200 ug/l. The dissolved analyses range from 28 ug/l to 5,600 ug/l. The dissolved barium results are plotted on Figure 18 and total analyses on Figure 19.

Beryllium (total analyses only) was detected above the screening level of 0.004 mg/l in two groundwater samples collected at NDD-4 and OW-55 at concentrations of 19 ug/l and 8 ug/l, respectively. None of the samples from the dissolved analyses exceed the screening level. The detected total analyses range from 0.55 ug/l to 19 ug/l, while the detected dissolved analyses range from 0.39 ug/l to 0.44 ug/l. The total analyses are shown on Figure 19.

Chromium and vanadium were both detected above their respective screening levels in the total analyses of groundwater samples collected from one location (NDD-4) at concentrations of 60 ug/l and 77 ug/l, respectively, while none of the dissolved analyses exceed screening levels. Chromium total analyses for detected results range from 5 ug/l to 60 ug/l vs. the screening level of 50 ug/l. Dissolved analyses for chromium were all non-detect. The detected results for total vanadium range from 8.7 ug/l to 77 ug/l in comparison to a screening level of 63.1 ug/l. The detected results for dissolved vanadium range from 3.1 ug/l to 7.2 ug/l. The total analyses are shown on Figure 19.

Cobalt (total analyses) was detected at concentrations above the screening in six (NDD-4, NDD-6, NDD-11, NDD-16, OW-54, and OW-55) of the groundwater samples collected, with only one of the dissolved analyses (OW-54) exceeding the screening level. The total cobalt analyses range from 8.6

ug/l to 110 ug/l vs. the screening level of 6 ug/l. The dissolved analyses for cobalt range from 2.2 ug/l to 100 ug/l in comparison to the screening level of 50 ug/l. The total analyses are shown on Figure 19 and dissolved analyses on Figure 18.

Iron was detected above the screening level in samples analyzed for total (four exceedances at NDD-4, NDD-11, OW-54, and OW-55) and dissolved analyses (two exceedances at NDD-11 and OW-55). Dissolved iron has also been detected above the screening level in samples collected at OW-14 at a concentration of 4,900 ug/l. The total analyses range from 71 ug/l to 45,000 ug/l in comparison to a screening level of 13,800 ug/l. The dissolved analyses range from 43 ug/l to 5,600 ug/l vs. a screening level of 1,000 ug/l. The dissolved analyses results are shown on Figure 18 and the total analyses are shown on Figure 19.

Lead (total analyses) was detected at concentrations above the screening in four (NDD-4, NDD-11, OW-54, and OW-55) of the groundwater samples collected, but none of the dissolved analyses exceed the screening level. The total lead analyses range from 0.086 ug/l to 160 ug/l vs. the screening level of 15 ug/l. The dissolved analyses for lead range from 0.19 ug/l to 7.9 ug/l in comparison to the screening level of 15 ug/l. The total analyses are shown on Figure 19.

Manganese was detected above the screening levels in both total and dissolved analyses. The total concentration screening level of 2,020 ug/l was exceeded in six locations in groundwater samples collected at temporary wells NDD-4, NDD-6, NDD-11, and NDD-16 and permanent wells OW-54 and OW-55. Samples collected at OW-14 have also shown exceedances of the screening level. The total analyses results range from 30 ug/l to 15,000 ug/l. Dissolved manganese concentrations exceeded the screening level of 200 ug/l in six locations (NDD-6, NDD-11, NDD-16, OW-54, OW-55, and OW-56) and has also been detected above the screening level at OW-14 and OW-29. The dissolved manganese concentrations range from 18 ug/l to 4,800 ug/l. The dissolved analyses results are shown on Figure 18 and the total analyses are shown on Figure 19.

One groundwater sample, which was collected at well OW-55, has concentrations of nickel that exceeds the screening level of 372 ug/l in both total and dissolved analyses. The detected results for the total analyses range from 32 ug/l to 460 ug/l, while the detected results for dissolved analyses range from 23 ug/l to 430 ug/l. The total analyses are shown on Figure 19 and dissolved analyses on Figure 18.

Chloride was detected above the screening level in six groundwater samples (NDD-4, NDD-6, NDD-11, NDD-16, OW-54, and OW-55) with concentrations ranging from 27,000 ug/l to 950,000 ug/l vs. the screening level of 250,000 ug/l. The analyses are shown on Figure 20.

1,2,4-Trimethylbenzene was detected above the screening level of 56 ug/l in the groundwater samples collected at NDD-6, NDD-11, and OW-55 at concentrations of 820 ug/l, 1,500 ug/l, and 1,800 ug/l, respectively. The detected concentrations range from 0.18 ug/l to 1,800 ug/l and are shown on Figure 21.

The screening level for 1,3,5-Trimethylbenzene was exceeded in the groundwater samples collected at NDD-6, NDD-11, and OW-55 with detected results of 200 ug/l, 400 ug/l, and 700 ug/l, respectively, vs. the screening level of 60 ug/l. The detected concentrations range from 0.46 ug/l to 700 ug/l and are shown on Figure 21.

1-Methylnaphthalene was detected above the screening level of 11 ug/l in the groundwater samples collected at NDD-6, NDD-11, and OW-55 at concentrations of 130 ug/l, 110 ug/l, and 78 ug/l, respectively. It has also been recently detected at OW-14 at 34 ug/l. The detected concentrations range from 0.26 ug/l to 130 ug/l and are shown on Figure 21.

2-Methylnaphthalene was detected above the screening level of 36 ug/l in the groundwater samples collected at NDD-6, NDD-11, and OW-55 at concentrations of 160 ug/l, 130 ug/l, and 120 ug/l, respectively. The detected concentrations range from 0.61 ug/l to 160 ug/l and are shown on Figure 21.

The screening level for 1,2-dichloroethane was exceeded in the groundwater samples collected at OW-55 and OW-56 with detected results of 5.6 ug/l, and 16 ug/l, respectively, vs. the screening level of 5 ug/l. The detected concentrations range from 0.32 ug/l to 16 ug/l and are shown on Figure 22.

Methyl tert-butyl ether (MTBE) was detected above the screening level of 143 ug/l in five groundwater samples, which were collected at NDD-6, NDD-11, OW-54, OW-55, and OW-56 at concentrations of 160 ug/l, 180 ug/l, 2,000 ug/l, 2,000 ug/l, and 200 ug/l, respectively. The detected concentrations range from 0.46 ug/l to 3,000 ug/l. In addition, MTBE has recently been detected at OW-14, OW-29, and OW-30 at concentrations of 580 ug/l, 3,000 ug/l, and 3,000 ug/l. The MTBE concentrations are plotted on Figure 22.

Naphthalene was detected above the screening level of 1.65 ug/l in four groundwater samples collected at NDD-6, NDD-11, OW-54, and OW-55 at concentrations of 280 ug/l, 390 ug/l, 5.7 ug/l and 370 ug/l, respectively. Naphthalene has also recently been detected at OW-14 at 18 ug/l. The detected concentrations range from 0.22 ug/l to 390 ug/l and are shown on Figure 22.

The screening level for benzene was exceeded in the groundwater samples collected at five locations (NDD-6, NDD-11, NDD-16, OW-54, and OW-55) with results of 5,300 ug/l, 8,200 ug/l, 47 ug/l, 160 ug/l, and 24,000 ug/l, respectively, vs. the screening level of 5 ug/l. The detected concentrations range from 0.5 ug/l to 24,000 ug/l and are shown on Figure 23.

The screening level for ethylbenzene was exceeded in the groundwater samples collected at two locations (NDD-11 and OW-55) with results of 1,400 ug/l and 2,800 ug/l, respectively, vs. the screening level of 700 ug/l. The detected concentrations range from 29 ug/l to 2,800 ug/l and are shown on Figure 23.

Toluene was detected above the screening level of 750 ug/l only at well OW-55. The reported concentration at OW-55 was 34,000 ug/l on the first sampling event and 4,600 ug/l on a second sampling event. The detected concentrations range from 0.34 ug/l to 34,000 ug/l. The results are shown on Figure 23.

Xylenes (total) was detected above the screening level of 620 ug/l in three groundwater samples collected at NDD-6, NDD-11, and OW-55 at concentrations of 2,100 ug/l, 5,700 ug/l, and 16,000 ug/l, respectively. The detected concentrations range from 1.4 ug/l to 16,000 ug/l and are shown on Figure 23.

Total petroleum hydrocarbons (GRO and DRO) were both detected at concentrations above the screening level of 0.04 mg/l. The detected concentrations of GRO range from 0.11 mg/l to 210 mg/l with the screening level exceeded in groundwater samples collected at NDD-4, NDD-6, NDD-11, NDD-16, OW-54, OW-55, and OW-56. GRO has also been detected above screening levels in nearby existing wells OW-14, OW-29, and OW-30. The detected concentrations of DRO range from 1.6 mg/l to 7.3 mg/l, with concentrations above the screening level in groundwater samples collected at NDD-6, NDD-11, OW-54, OW-55, and OW-56. DRO has also been detected above the screening level in groundwater samples collected at OW-14. The results for GRO and DRO are shown on Figure 24.

6.3 General Groundwater Chemistry

The measurement of field purging parameters included measurement of groundwater pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature. The results of the measurements are included in Table 4 and fluid levels measured prior to purging are also presented in Table 4.

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

There are no reported concentrations in soil for individual constituents that exceed the residential soil screening levels, with the exception of one sample [NDD-5 (0-0.5')], which exceeded for arsenic at a concentration of 21 mg/kg in comparison to the residential screening level of 7.07 mg/kg. The only other results that exceed the residential screening levels are for GRO, DRO and MRO. GRO, DRO and/or MRO were detected above residential soil screening levels in samples NDD-5 (1.5-2'), NDD-6 (1.5-2'), NDD-6 (4-6'), NDD-8 (1.5-2'), NDD-9 (1.5-2'), and OW-55 (16-18').

The only individual constituent that has concentrations above the non-residential soil screening level is manganese. Manganese was detected in 16 soil samples [NDD-6 (0-0.5'), NDD-6 (4-6'), NDD-6 (10-12'), NDD-7 (1.5-2'), NDD-8 (0-0.5'), NDD-11 (0.0-0.5'), NDD-11 (1.5-2'), NDD-11 (12-14'), NDD-12 (1.5-2'), NDD-14 (1.5-2'), NDD-15 (0-0.5'), NDD-15 (1.5-2'), NDD-16 (0-0.5'), NDD-16 (1.5-2'), NDD-16 (14-16'), and NDD-16 (22-24')] with concentrations ranging from 480 mg/kg to 1,600 mg/kg in comparison to the non-residential (i.e., construction worker) screening level of 464 mg/kg. The only other results that exceed the non-residential screening levels are for DRO and MRO. DRO and/or MRO were detected above non-residential soil screening levels in samples NDD-5 (1.5-2'), NDD-6 (1.5-2'), NDD-6 (4-6'), and NDD-8 (1.5-2').

The following observations are made from the soil analyses:

- The soil samples collected at the soil boring (NDD-4) completed at the up-gradient location along the eastern portion of the North Drainage Ditch do not indicate impacts from refinery operations, thus suggesting the down-gradient impacts did not result from transport within the ditch;
- The impacted soils overlie the same general area (i.e., mostly along and between NDD-6 and NDD-11) where the greatest groundwater impacts are observed;

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- The concentrations of TPH are greater at depth (e.g., 1.5 – 6') than near the land surface (0-0.5');
 - The impacts to soils are defined to the east in boring NDD-4 and to the west in NDD-16; and
 - The soil impacts mostly appear to be associated with lateral transport of contaminants in shallow groundwater and the distribution is controlled by the presence of more permeable sediments (e.g., sand vs. silty clay) overlying the Chinle bedrock.

Groundwater

In the area of the North Drainage Ditch, groundwater was encountered in all four of the soil borings/temporary wells (NDD-4, NDD-6, NDD-11, and NDD-16) completed along the length of the ditch. Groundwater was also found to be present in new permanent monitoring well OW-56, which was installed near former soil boring NDD-3 to the southeast. Two previous borings (NDD-1 and NDD-2), which were drilled a short distance to the south and west of the ditch were drilled to the top of bedrock in May 2015, but did not encounter saturation. From the groundwater samples collected at NDD-4, NDD-6, NDD-11, NDD-16, and OW-56, in addition to the metals that were detected in the groundwater samples at concentrations above screening levels, 10 individual organic constituents and GRO and DRO were found to be present above screening levels. A review of Figures 21 through 24 shows a common pattern with the highest concentrations present in and near NDD-6 and NDD-11. This area of highest concentrations also corresponds with an increased thickness of permeable sediments overlying bedrock, which appears to represent a preferential pathway for migration.

Based on the sand/gravel isopach map presented as Figure 10 and the potentiometric surface map (Figure 12), it appears likely that the impacted groundwater observed at the North Drainage Ditch may have been sourced at the refinery tank farm. The water levels measured in NDD-6 (1.8 feet bgl) and NDD-11 (3.2 feet bgl) are very shallow indicating the water observed in the North Drainage Ditch is actually groundwater that is discharging to the land surface.

In the area investigated down-gradient of OW-29 and OW-30, two (OW-54 and OW-55) of the three new wells encountered groundwater, while the third well (OW-53) drilled furthest to the north did not encounter groundwater although it was drilled all the way to the top of bedrock. Similarly as to the North Drainage Ditch, there were numerous metals found to be present in water samples at concentrations above screening levels and the same 10 individual organic constituents and GRO and DRO with the additional presence of toluene above screening levels. The higher concentrations

were consistently found in the southernmost and up-gradient well (OW-55) with the exception of MTBE, which has a higher concentration to the east near previous existing wells OW-29 and OW-30.

The impacts to groundwater observed down-gradient of OW-29 and OW-30 also appear to have been sourced from the refinery tank farm based on the potentiometric gradient (Figure 12), sand/gravel thickness overlying bedrock (Figure 10), and contaminant distribution (Figures 18 - 24).

7.2 Recommendations

Six additional temporary wells are recommended to complete the lateral delineation of impacts to groundwater to the northwest and north of the North Drainage Ditch borings and northwest of monitor wells OW-53 and OW-54. These locations were selected to help intersect any possible migration of impacted groundwater down-gradient from the area of NDD-6, NDD-11, and OW-54. In addition, two permanent monitoring wells are recommended between the North Drainage Ditch and the tank farm. To provide additional information on the vertical delineation of impacts observed along the North Drainage Ditch, two additional soil borings are recommended in the area of NDD-5 and NDD-8. A new Investigation Work Plan is proposed to be submitted by August 30, 2019. The proposed boring locations are depicted on Figure 25.

To determine if site concentrations of inorganic constituents in soil are reflective of naturally occurring concentrations unaffected by site activities, Western proposes to conduct a background study. Western will prepare a Background Concentrations Investigation Work Plan and submit it for review by NMED.

Section 8

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Figure 21	Trimethylbenzene and Methylanthalene Groundwater Map
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Appendix A
North Drainage Ditch Analytical Reports
2009 and 2015

Appendix B
North Drainage Ditch
May 2015 Soil Boring Logs

Appendix C

Waste Manifests

Appendix D

Survey Data

Appendix E
Permeability and Hydraulic Conductivity
Evaluations

Appendix F

Field Methods

Appendix G
May 2016 Soil Boring Logs and Well Logs

Appendix H
Analytical Data Reports
Provided in electronic format only on CD

Appendix I

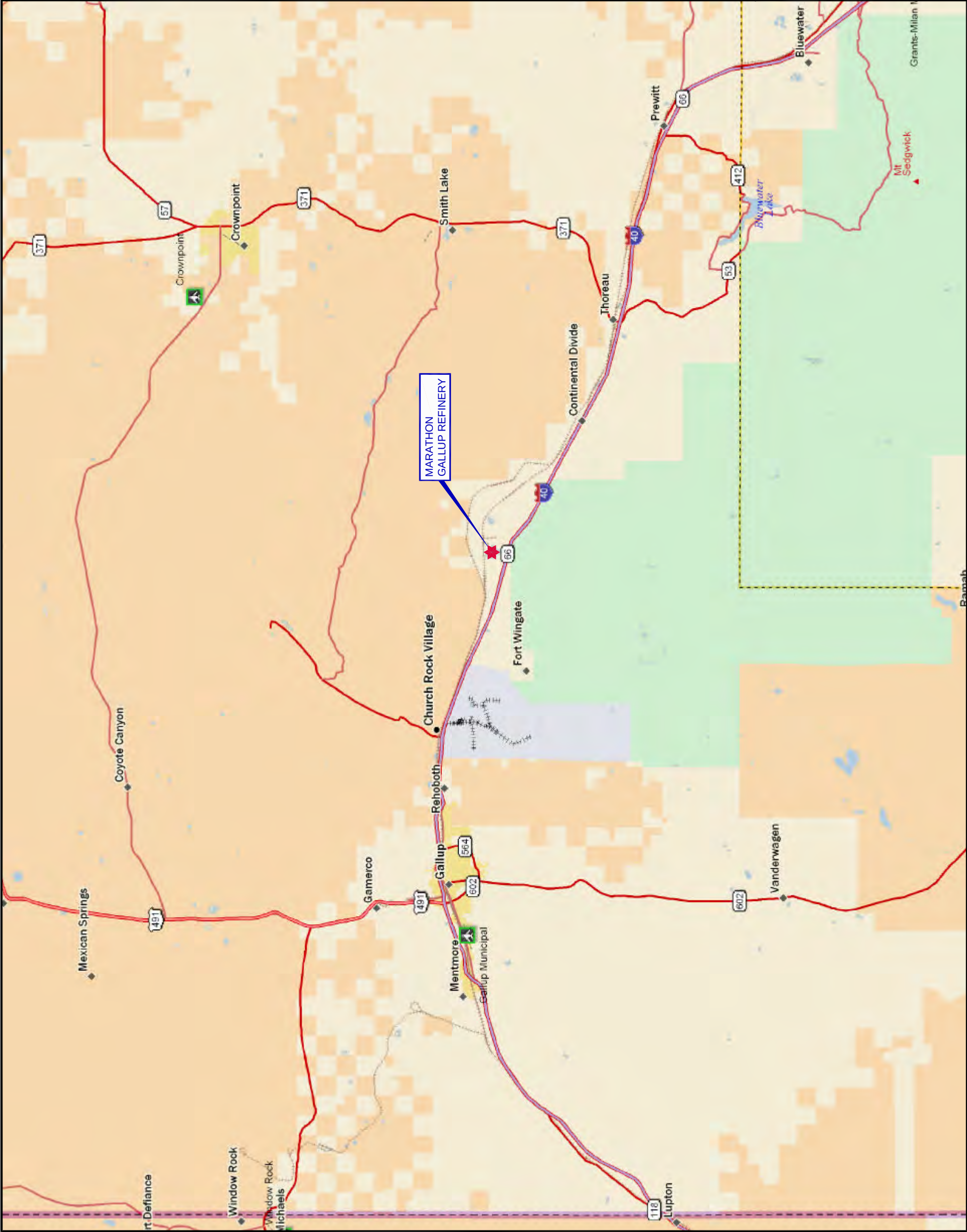
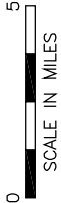
Quality Assurance/Quality Control Review

Appendix J

Tank Farm Information

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Figure 23	BTEX Groundwater Map
Figure 24	Total Petroleum Hydrocarbons Groundwater Map
Figure 25	Proposed Boring Location Map





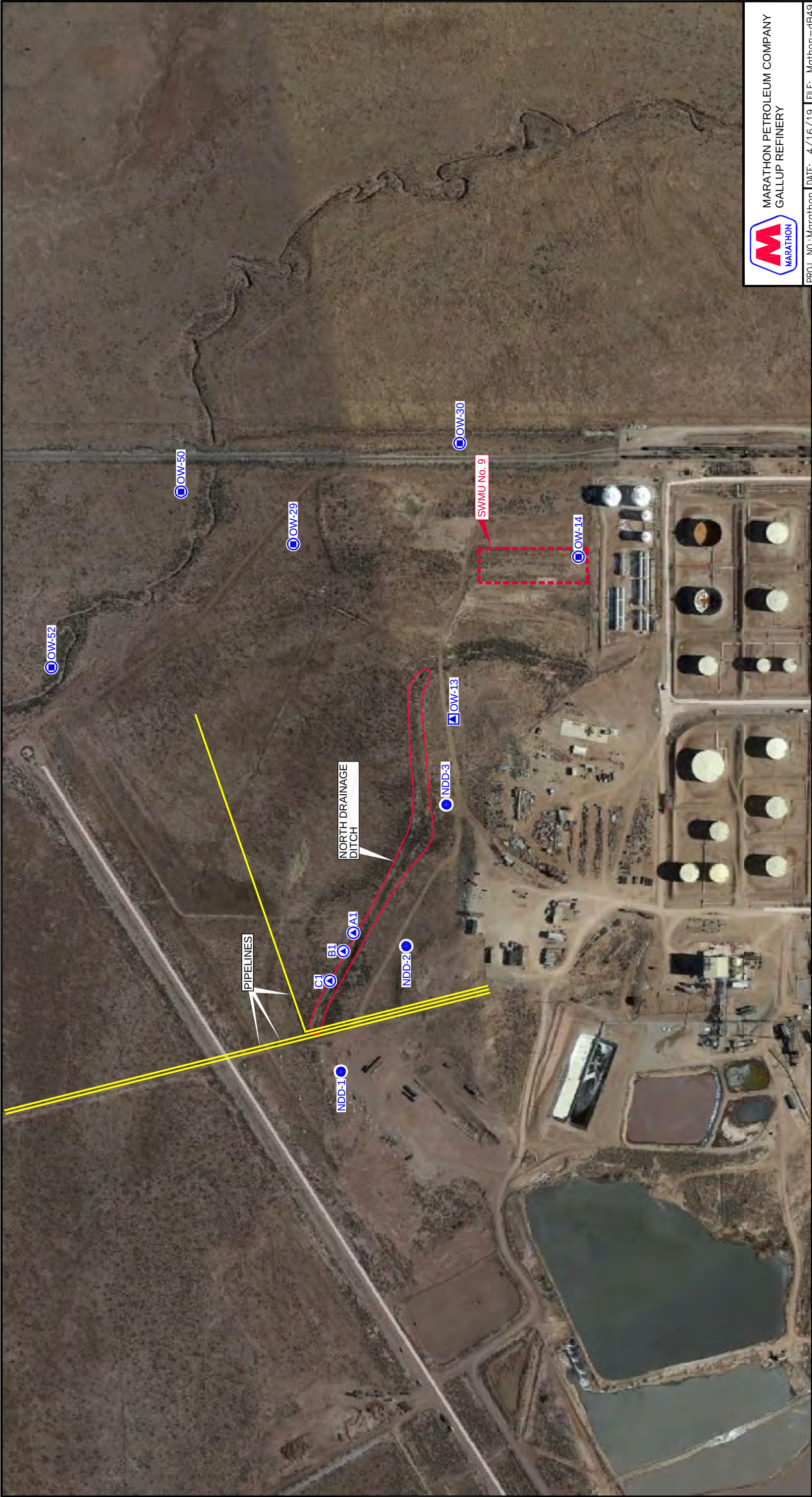
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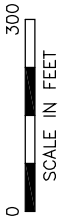
FIGURE 1
SITE LOCATION MAP
GALLUP REFINERY



8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759

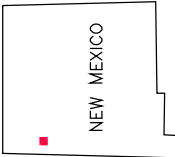


Aerial Map Source: Google Map, 02/19/2014.



LEGEND

- A1 SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1 TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-13 SONSELA MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14 ALLUVIUM/CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER



GALLUP SITE LOCATION



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FIGURE 2
INVESTIGATION AREA



8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759



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



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GALLUP REFINERY

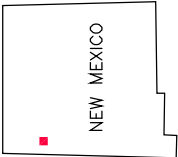
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FIGURE 3

NORTH DRAINAGE DITCH



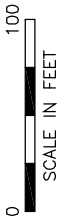
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Austin, Texas 78759

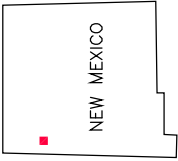
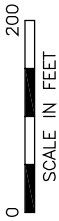


GALLUP SITE LOCATION

LEGEND

-  NDD-1
- SOIL BORING LOCATION AND IDENTIFICATION NUMBER
-  NDD-5
- SURFACE SOIL (0-2') LOCATION AND IDENTIFICATION NUMBER
-  NDD-4
- SOIL BORING / TEMP. WELL LOCATION AND IDENTIFICATION NUMBER
-  A1
- SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER





GALLUP SITE LOCATION

LEGEND

- NDD-1  SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1  SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1  TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14  ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

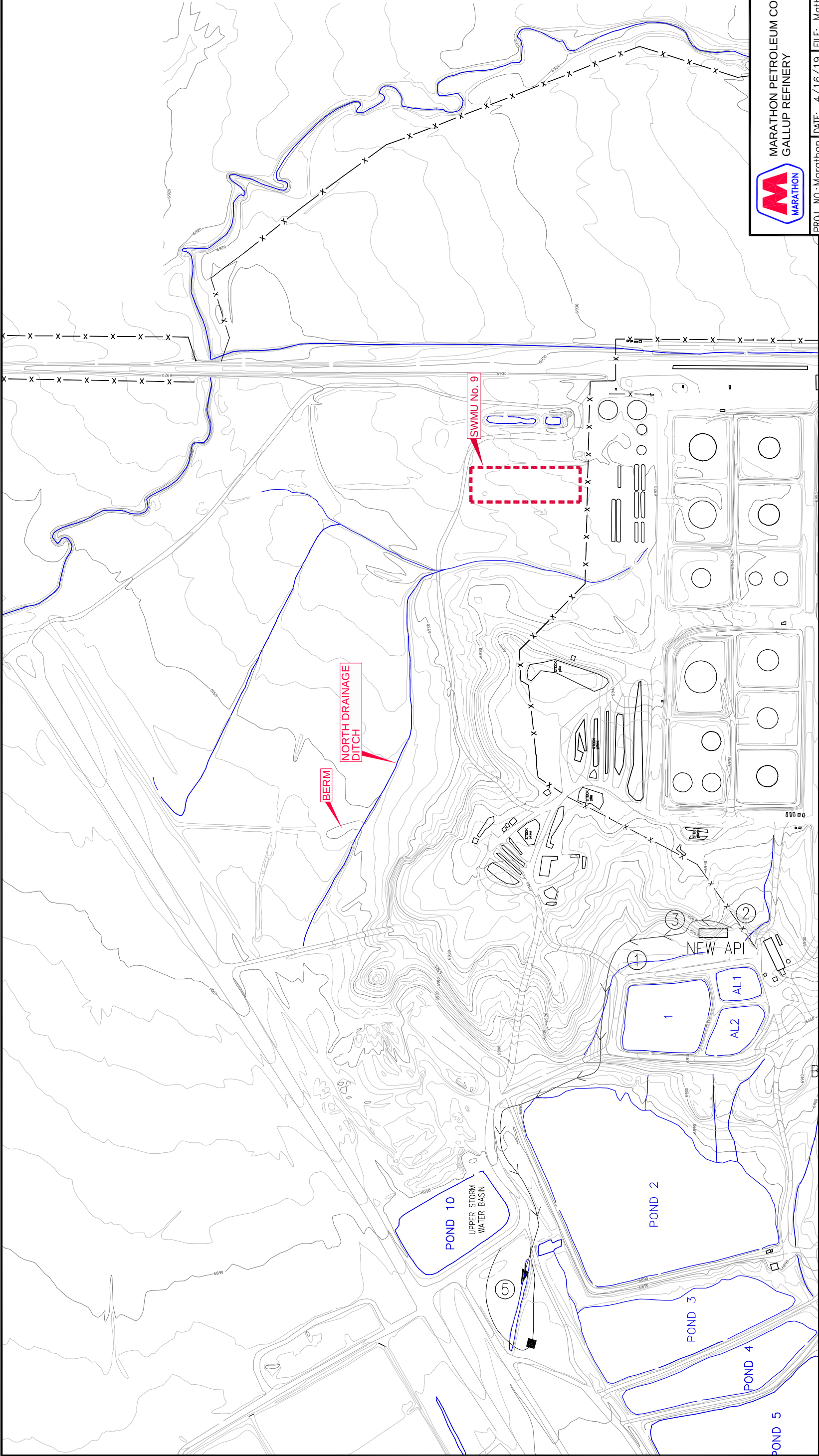


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FIGURE 4
OW-29 & OW-30 AREA



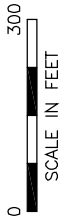




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FIGURE 5
TOPOGRAPHIC MAP



NOTE:
CONTOUR INTERVAL = 2.0 FEET

TERTIARY

Tus Upper Tertiary sedimentary units (Pliocene to upper Oligocene)—includes Bidahochi Formation (Pliocene to upper Miocene), Picuris Formation, (Miocene to Oligocene), Las Vegas 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

Tf1 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

Tip 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

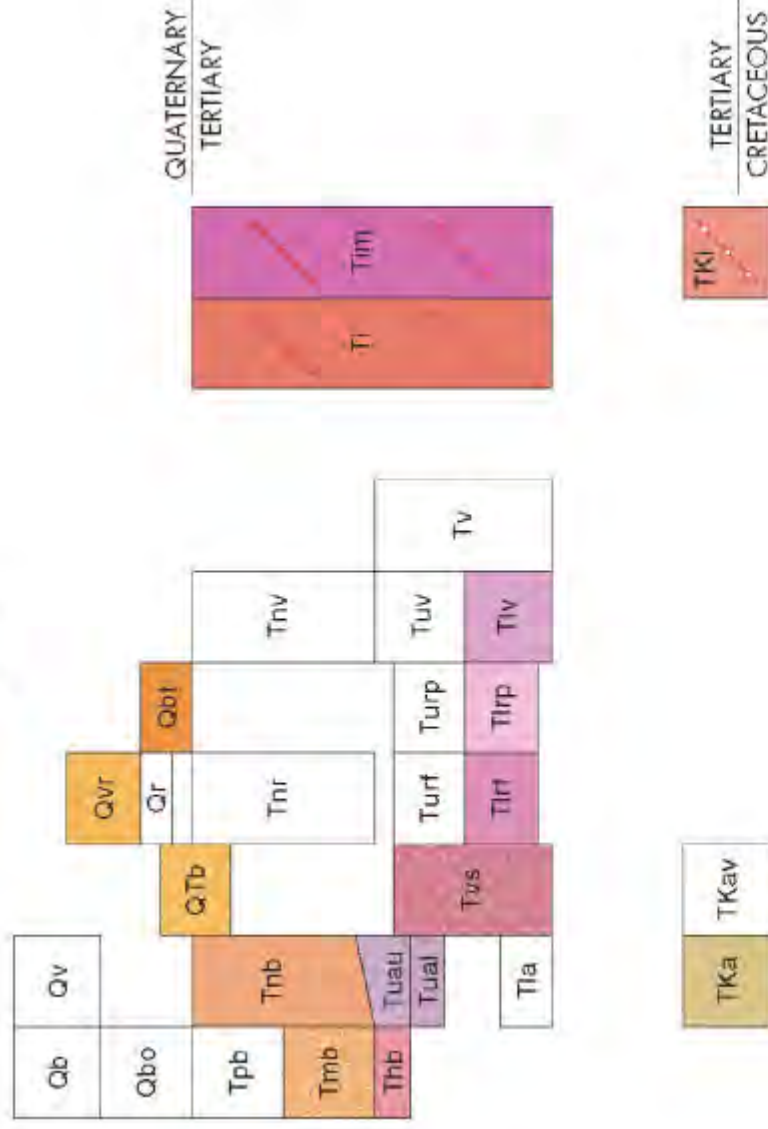
Tnb Basaltic to andesitic lava flows (Neogene)—includes minor vent deposits. Flows are commonly interbedded in the Santa Fe and Gila Groups

Thr Silicic to intermediate volcanic rocks (Neogene, mostly Miocene)—Rhyolite and dacite flows with associated rhyolite 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 Tazs and eastern Rio Arriba Counties; basalt flows interbedded with Los Pinos Formation

Igneous



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

Lower-upper middle Tertiary basaltic andesites and andesites of the Mogollon Group (upper Oligocene, 26–29 Ma)—Includes La Jara Peak Basaltic Andesite, Lvas 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. Pie-Armdia Tuff was in the Questa caldera are dominantly silicic andesites and dacites; elsewhere silicic lavas are a minor component of Tuff.

Middle Tertiary volcanoclastic sedimentary units (Oligocene to upper Eocene)—Mostly synruptive volcanoclastic 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, Trip.) include Palm Park, lower Bell Top, Espinazo and Pueblo Creek Formations and lower Spears Group formations such as Rincon Windmill, Chavez Canyon, and Dog Springs.

Turf

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

Tlrf

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

Tlup

Upper middle Tertiary rhyolitic pyroclastic rocks of the Mogollon Group, ash-flow tuffs (upper Oligocene, 24–30 Ma)—Regional ash-flow tuffs include the LaJencia, Vicks Peak, Lerritar, South Canyon, Bloodgood Canyon, Shelly Peak, Davis Canyon, Park, Rhyolite Canyon, Apache Spring, and Amala 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

Tltp

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, Sugar Lump, Oak Creek, Bluff Creek, Gillespie, Box Canyon, Cooney, and Chiquito Peak Tuffs; the tuffs of Steins Mountain, Black Bill Canyon, Woodhaul Canyon, and Fair Ranch; tuffs of the Organ cauldron; and lower tuffs in the Bell Top Formation. Includes some locally erupted lavas and tuffs with thin thick intracaldera units; includes minor volcaniclastic sedimentary units and lavas between thin outflow sheets

Tlla

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

Tluv

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 (Tlva + Tlva + Turp). Includes locally erupted lavas and tuffs in some calderas

Tliv

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 (Tlla + Tlvs). Locally includes ash-flow tuffs of the upper Datil Group (Tltp). 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

Tt

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

Ttm

Tertiary mafic intrusive rocks (Pliocene to upper Eocene)—Includes many long basaltic andesite dikes of Oligocene age near Pie Town, Acornia, Riley, Chupadera, Truth or Consequences, Roswell, Raton, and Duke; 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 Boca, Galisteo, El Rito, Blanco Basin, Hott Mine, Love Ranch, Lobbo, 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

TKl

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

Map Source: Geologic Map of New Mexico, 2003.



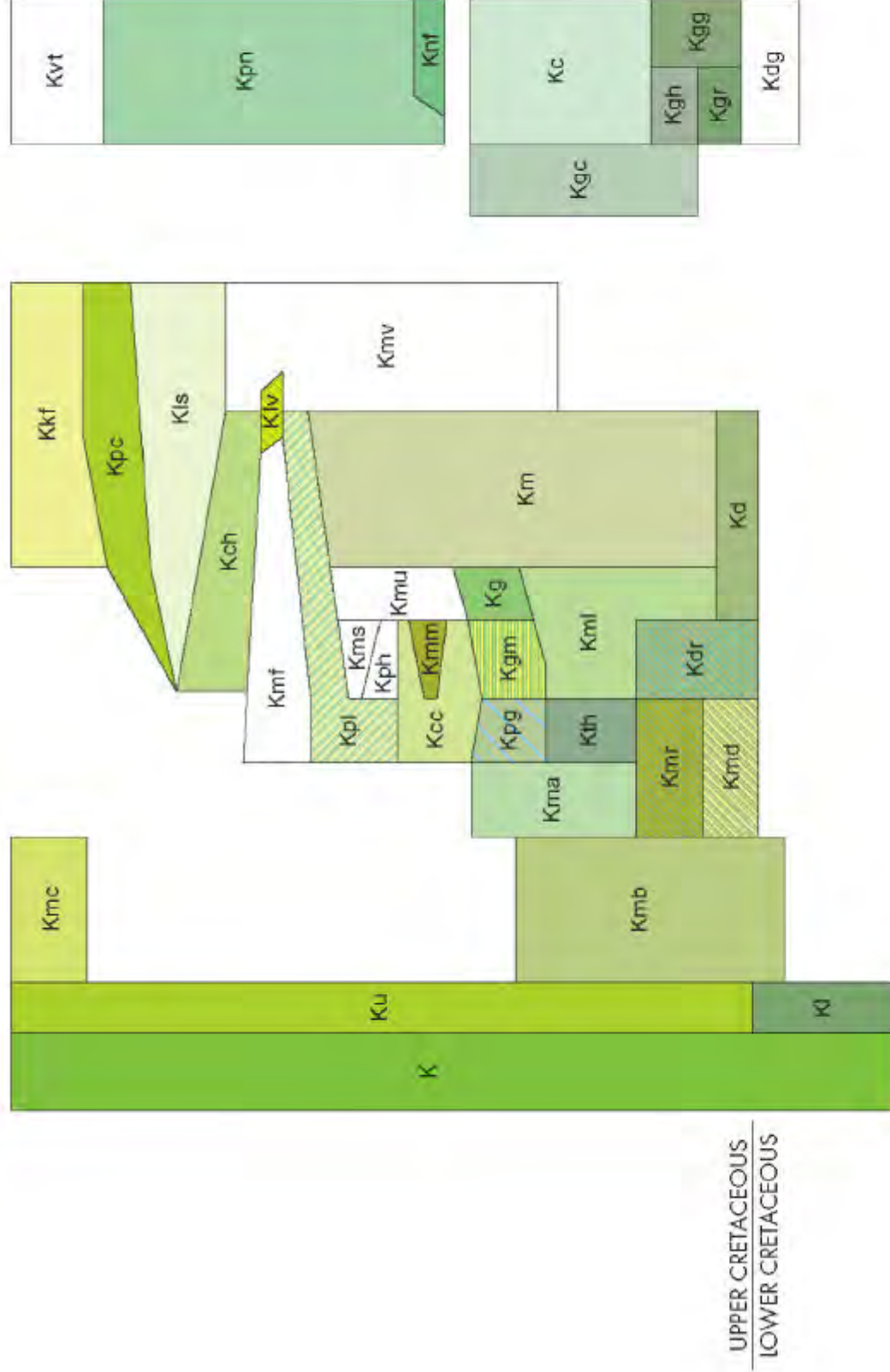
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FIGURE 6
LEGEND SHEET 3 OF 8
GEOLOGIC MAP OF NEW MEXICO
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Disorbo
Environmental Consulting Firm

8501 N. MoPac Expwy.
Suite 300
Austin, Texas 78759



CRETACEOUS

Cretaceous rocks, undivided

Upper Cretaceous rocks of southwestern New Mexico, undivided {Maestrichtian to Cenomanian for most part, although Beartooth and Sartén Formations are in part Albian} — Includes Virden Formation in northern Hidalgo County; Ringbone Formation in Hidalgo, Luna, and Grant Counties; Beartooth and Sartén Formations in Luna and Grant Counties; Mancos Shale in Silver City area

McRae Formation (Maastrichtian) – Engle Basin – Custer sag area

Vermejo Formation and Trinidad Sandstone (Maastrichtian to Campanian)

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

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

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.

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

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

Mancoos Shale (Cenomanian to Campanian)—Divided into upper and lower parts by Gallup Sandstone.

Manco's Shale, upper part (Companion to Coniacian)

Mancos Shale, lower part (Turonian and Cenomanian)

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



- 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 Saton 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)
- Koc

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 Alarque Sandstone is present; mapped as Kdr in parts of Socorro County



- Jsr

San Rafael Group (Middle Jurassic)—Consists of Entrada Sandstone, Todillo 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-rock 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 Tucumaní Shale (Albian) in Tucumaní area; and Glencarm Formation (Albian) in Union County

- Kmb

Mancos Shale (Cenomanian) and Beartooth and Sartan 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 Tucumaní Shale; in Carrizosa 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 Hello-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

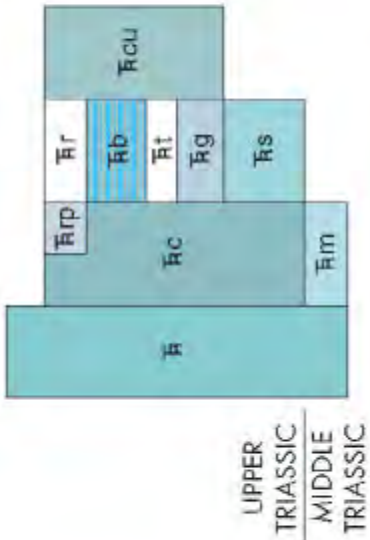
Morrison Formation—Upper Jurassic nonmarine rocks
- Jmsu

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

Zuni Sandstone (Callowian)—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)

Triassic rocks, undivided—Continental red beds

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

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

Redonda Formation (Upper Triassic)

Bull Canyon Formation (Norian)

Trujillo Formation (Norian)

Garita Creek Formation (Carnian)

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

Upper Chinle Group, Garita Creek through Redonda Formations, undivided

Moenkopi Formation (Middle Triassic)

Map Source: Geologic Map of New Mexico, 2003.



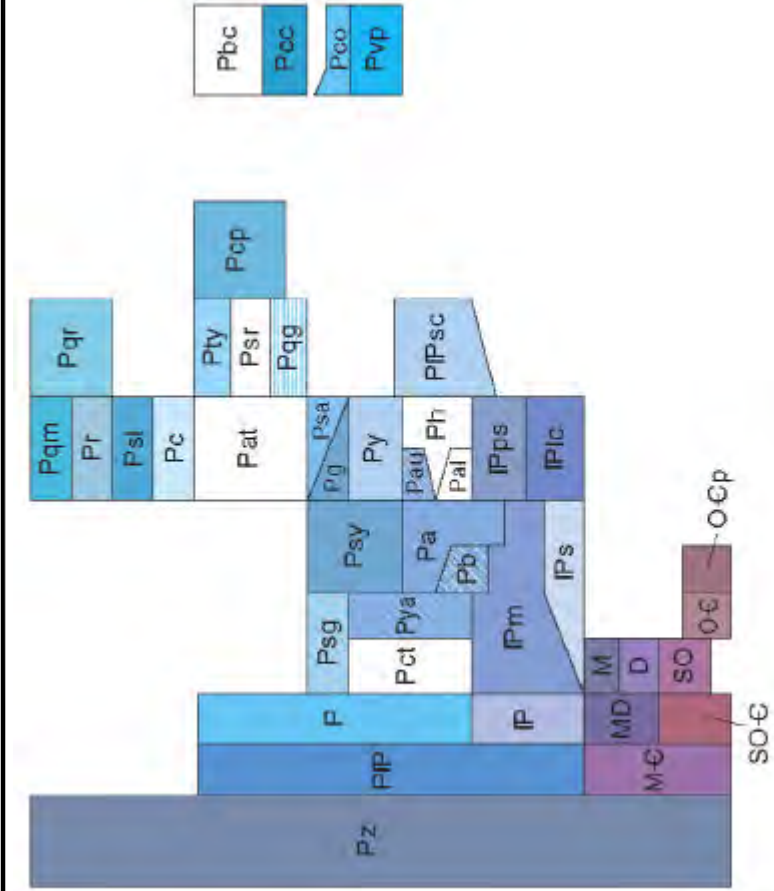
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FIGURE 6
LEGEND SHEET 5 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY



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PALEOZOIC

Pz	Paleozoic rocks, undivided
P	Permian rocks, undivided
Pqm	Quartermaster Formation (Upper Permian)—Red sandstone and siltstone
Pqr	Quartermaster and Rusler Formations (Upper Permian)
Pr	Rusler 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 Maenkopi 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
Pqp	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 Brokenff Mountains only
Pvp	Victorio Peak Limestone (Leonardian)—In Brokenff 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, Alamitas, and Flechado Formations; elsewhere may include BarB, Nakaye, Red House, Oswaldo, and Syrena Formations

IPm
Madera Group (Pennsylvanian)—In Manzano Mountains includes Wild Cow Formation and Los Mochos Limestone; in Lucero Mesa includes Red Tanks, Atrasado, Gray Mesa Formations; in Sacramento Mountains includes the non-Madera Holder, Beaman, 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 Morrow Osha Canyon Formation in Sierra Nacimiento

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

IPic
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); Pecha Shale, Contadero, Sly Gap, and Oriate Formations of south-central New Mexico; and Canutillo Formation of northern Franklin Mountains and Bishops Cap area (Devonian)

MG
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 Pecha Shale, Oriate, 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



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FIGURE 6

LEGEND SHEET 6 OF 8

GEOLOGIC MAP OF NEW MEXICO

GALLUP REFINERY

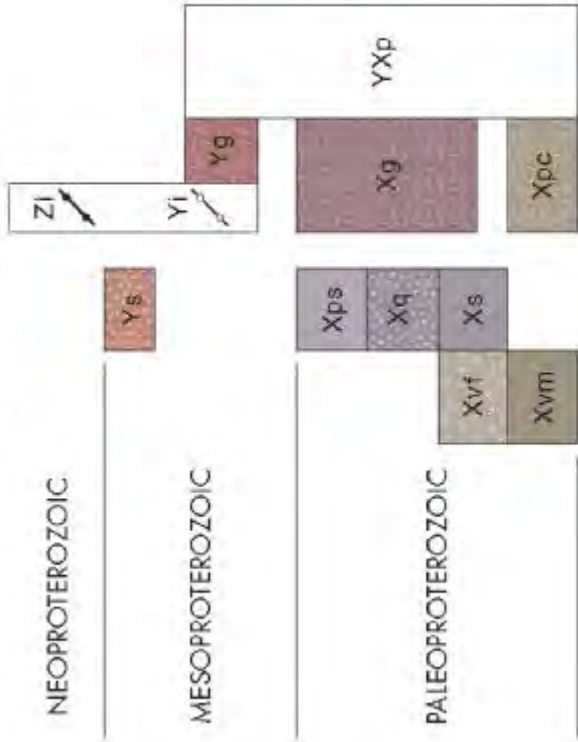


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Map Source: Geologic Map of New Mexico, 2003.

Supracrustal Intrusive



MAP SYMBOLS



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 Sevillaera Mexrhyolite 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 Moplin (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.



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FIGURE 6
LEGEND SHEET 7 OF 8
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Western New Mexico			
Jurassic	Upper	Morrison Formation	Jackpile Member
			Brushy Basin Member
			Westwater Canyon Member
			Recapture Member
			Salt Wash Member
	Middle	 Cow Springs Sandstone Wanakah Formation	Tidwell Member
			Horse Mesa Member
			Beclabito Member
			Todillo Limestone Member
			Upper sandstone member
Lower	Glen Canyon Group	Rehoboth Member	
		Iyanbito Member	
		Navajo Sandstone *	
		Kayenta Formation *	
		Wingate Sandstone	
* Subsurface only			

Western New Mexico				Eastern New Mexico			
Triassic	Upper	Chinle Formation	Rock Point Member	Central New Mexico	Dockum Group		Redonda Formation
			Owl Rock Member				Cooper Formation
			Correo Sandstone Member				Trujillo Sandstone
			Sonsela Sandstone Member				Tecovas Formation
			Monitor Butte Member				Santa Rosa Sandstone
Middle	Moenkopi Formation		Shinarump Member				Anton Chico Formation

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.



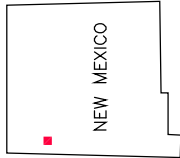
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FIGURE 6
LEGEND SHEET 8 OF 8
GEOLOGIC MAP OF NEW MEXICO
GALLUP REFINERY



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GALLUP SITE LOCATION

LEGEND

-  **NDD-1** SOIL BORING LOCATION AND IDENTIFICATION NUMBER
 **NDD-1** TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
 **OW-14** ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
 **A' LINE OF CROSS-SECTION**



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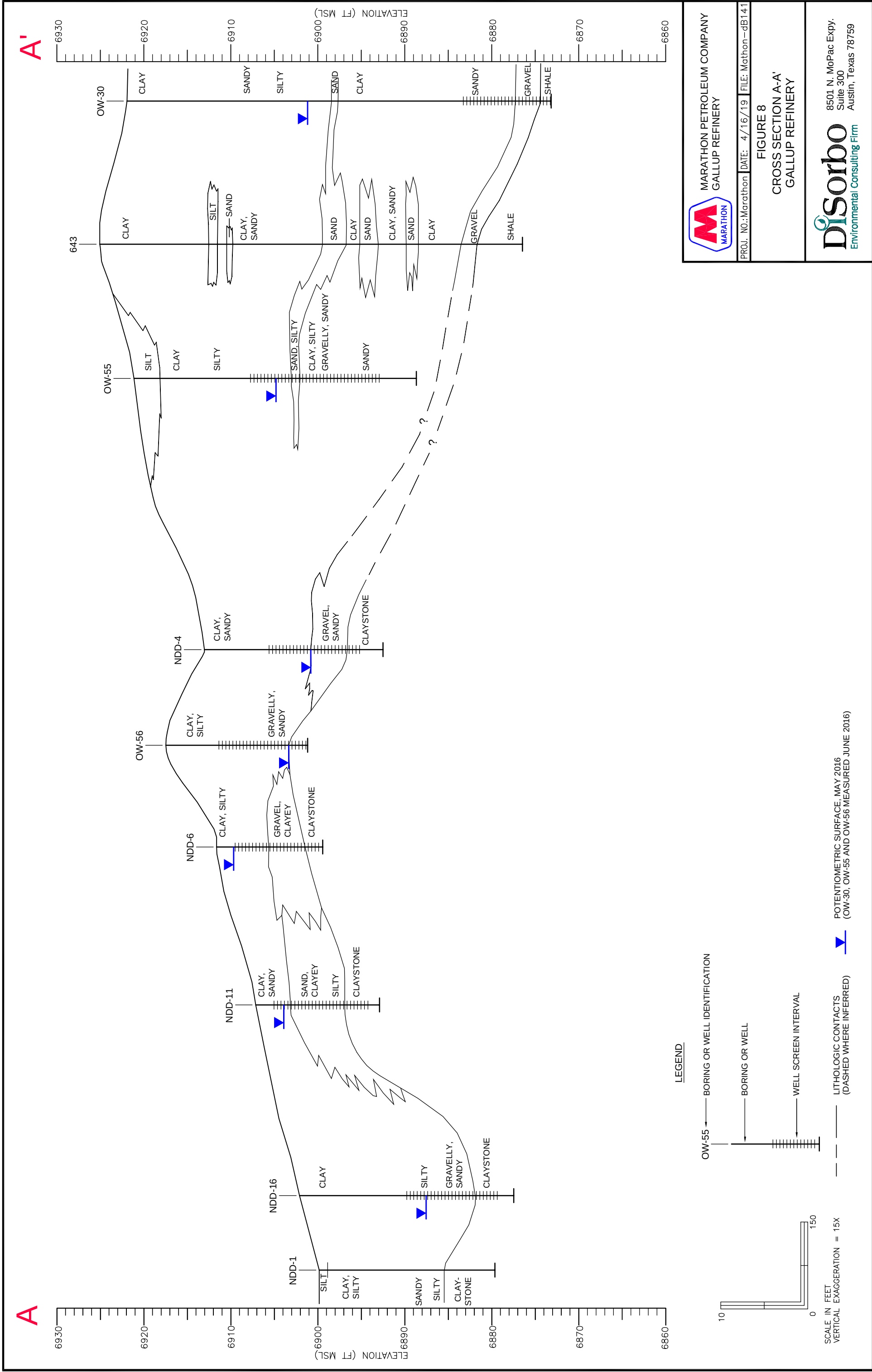
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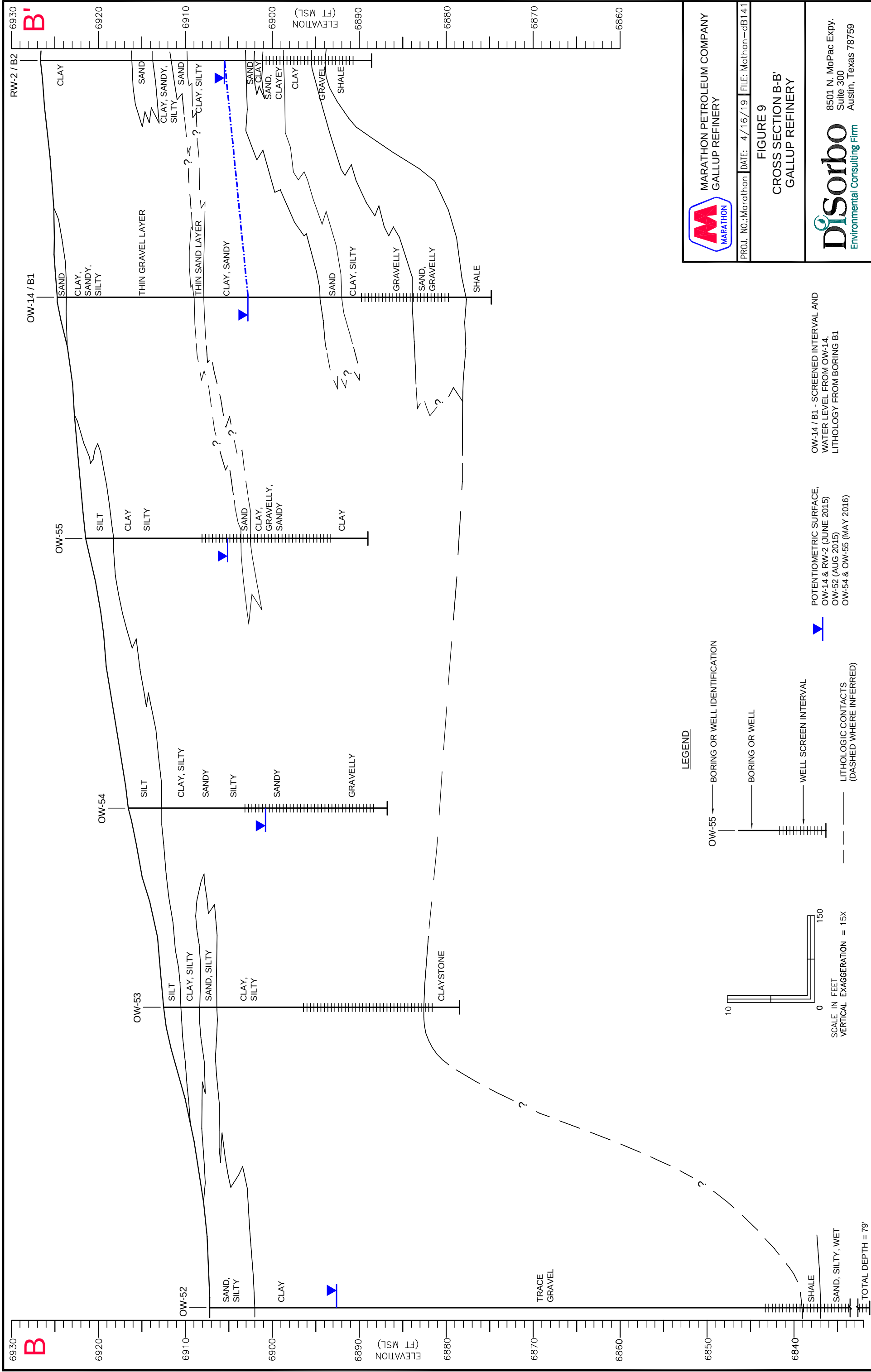
FIGURE 7

CROSS SECTION LOCATION MAP

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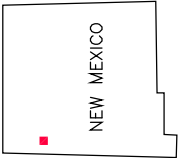
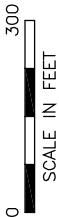
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FIGURE 9
CROSS SECTION B-B'
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GALLUP SITE LOCATION

LEGEND

- NDD-1 SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- NDD-1 TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14 ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- 6 CONTOUR LINE OF SAND THICKNESS ABOVE CHINLE GROUP (FT)
- 4.4 SATURATED SAND AND GRAVEL THICKNESS ABOVE CHINLE GROUP (FT)



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GALLUP REFINERY

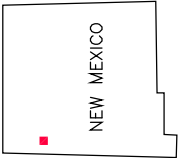
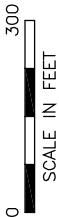
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FIGURE 10
ISOPACH MAP
SATURATED SAND AND GRAVEL
ABOVE CHINLE GROUP



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GALLUP SITE LOCATION

LEGEND

NDD-1



SOIL BORING LOCATION
AND IDENTIFICATION NUMBER

NDD-1



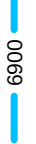
TEMPORARY MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER

OW-14



ALLUVIUM / CHINLE GP MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER

6900



CONTOUR LINE ELEVATION
TOP OF CHINLE GROUP (FT ABOVE MSL)

6907.53



ELEVATION TOP OF CHINLE GROUP
(FT ABOVE MSL)
CONTOUR INTERVAL = 10'

NOTE:

LAND SURFACE ELEVATIONS USED TO
CALCULATE ELEVATIONS TAKEN FROM
SITE SURFACE ELEVATION CONTOUR
MAP WHERE SURVEY NOT AVAILABLE

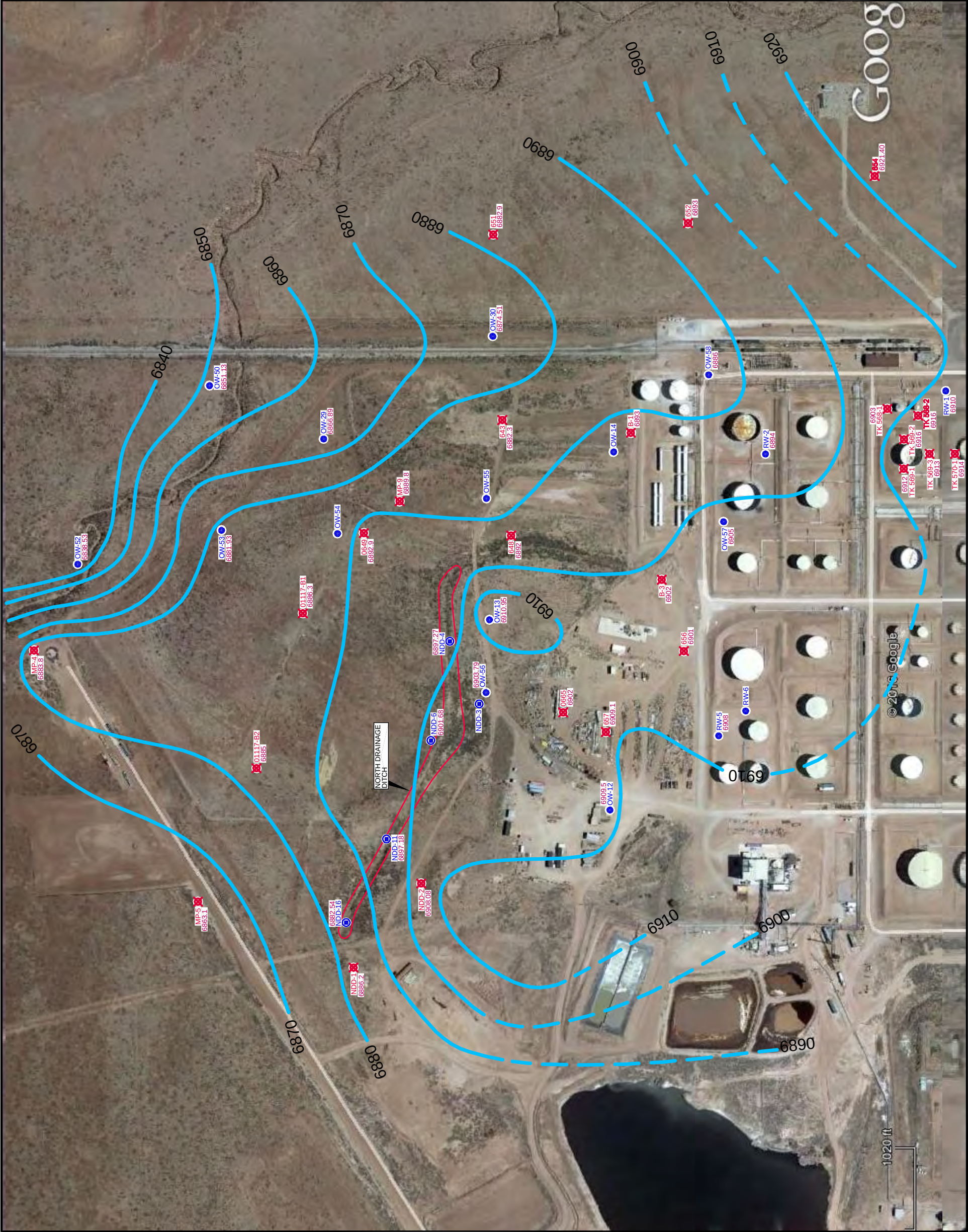


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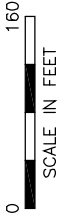
FIGURE 11

PALEOTOPOGRAPHY
TOP OF CHINLE GROUP





Aerial Map Source: Google Map, 01/05/2014.



LEGEND

- TK 568-1 SOIL BORING / TEMP WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14 ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- 6903.15 WATER LEVEL ELEVATION MEASURED SEPTEMBER 2016 (ABOVE MSL)
- 6910 POTENTIOMETRIC CONTOUR (FT)
- GROUNDWATER FLOW DIRECTION



GALLUP SITE LOCATION



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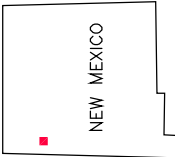
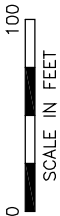
FIGURE 12
SEPTEMBER 2016
POTENTIOMETRIC SURFACE MAP



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



GALLUP SITE LOCATION



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FIGURE 13
ARSENIC

SOILS CONCENTRATION MAP
NORTH DRAINAGE DITCH



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



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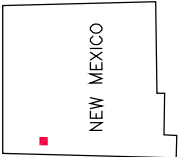
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FIGURE 16

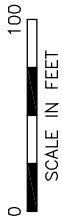
DIESEL RANGE ORGANICS
SOILS CONCENTRATION MAP
NORTH DRAINAGE DITCH

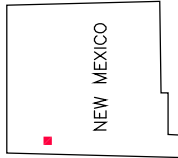


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GALLUP SITE LOCATION





GALLUP SITE LOCATION

LEGEND

~~NDD-1~~

A1 

NDD-1



OW-14 ●



SOIL BORING LOCATION
AND IDENTIFICATION NUMBER

SURFACE WATER SAMPLE LOCATION
AND IDENTIFICATION NUMBER

TEMPORARY MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER

ALLUVIUM / CHINLE GP MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER

7.1J ARSENIC (µg/L)

270 BARIUM (µg/L)

43 IRON (µg/L)

2,900 MANGANESE (µg/L)

ARSENIC (µg/L)

BARIUM (µg/L)

IRON (µg/L)

MANGANESE (µg/L)

UNDERLINED CONCENTRATION VALUE
EXCEEDS SCREENING LEVEL (µg/L)

10 ARSENIC (µg/L)

1,000 BARIUM (µg/L)

1,000

200 MANGANESE (µg/L)

ARSENIC (µg/L)

BARIUM (µg/L)

IRON ($\mu\text{g/L}$)

MANGANESE ($\mu\text{g/L}$)



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GALLUP REFINERY

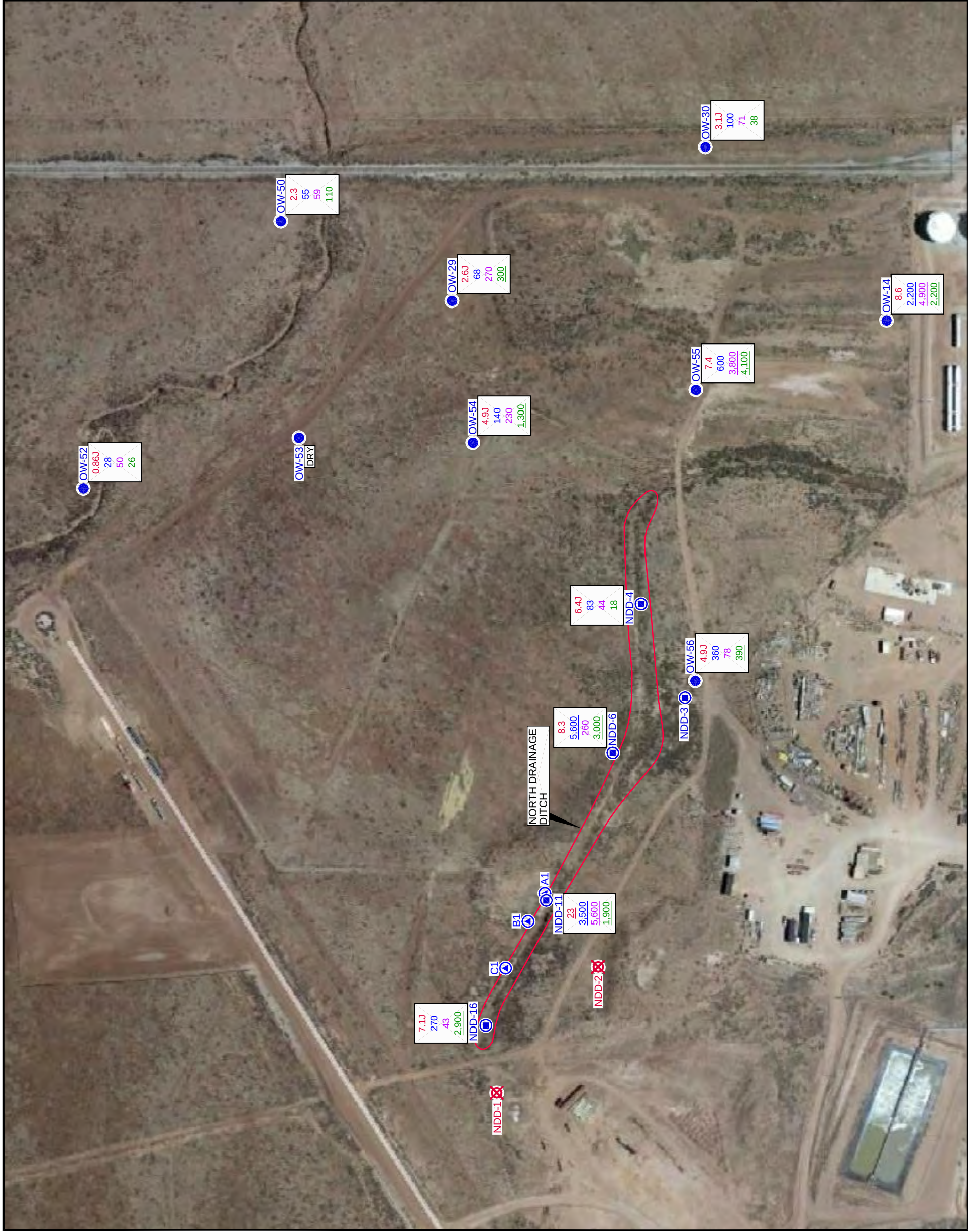
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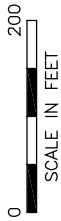
FIGURE 18
DISSOLVED METALS
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

~~NDD-1~~

A1 

NDD-1

OW-14 ●

8.7
190

UNDERLINED CONCENTRATION VALUE
EXCEEDS SCREENING LEVEL (µg/L)

50
372

NA NOT ANALYZED



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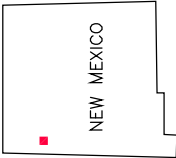
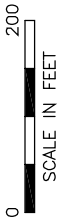
FIGURE 18-2
DISSOLVED METALS
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

NDD-1



SOIL BORING LOCATION
AND IDENTIFICATION NUMBER
SURFACE WATER SAMPLE LOCATION
AND IDENTIFICATION NUMBER
TEMPORARY MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER
ALLUVIUM / CHINLE GP MONITORING WELL
LOCATION AND IDENTIFICATION NUMBER

A1



NDD-1



OW-14

2.1

87

NA

<2.6

ARSENIC (µg/L)

BARIUM (µg/L)

BERYLLIUM (µg/L)

CHROMIUM (µg/L)

UNDERLINED CONCENTRATION VALUE
EXCEEDS SCREENING LEVEL (µg/L)

ARSENIC (µg/L)

BARIUM (µg/L)

BERYLLIUM (µg/L)

CHROMIUM (µg/L)

NA

NOT ANALYZED



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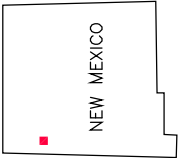
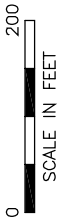
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FIGURE 19-1
TOTAL METALS
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

- NDD-1

SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1

SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1

TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14

ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

15
6,300
8.4
3,200

COBALT (µg/L)
IRON (µg/L)
LEAD (µg/L)
MANGANESE (µg/L)

UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (µg/L)

6
13,800
15
200

COBALT (µg/L)
IRON (µg/L)
LEAD (µg/L)
MANGANESE (µg/L)

NA NOT ANALYZED



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

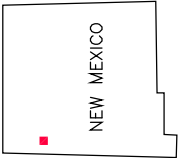
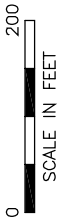
PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB172

FIGURE 19-2
TOTAL METALS
GROUNDWATER MAP



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Austin, Texas 78759





GALLUP SITE LOCATION

LEGEND

- NDD-1

SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1

SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1

TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14

ALLUVIUM / CHINLE GP. MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- 360
36J

NICKEL (µg/L)
VANADIUM (µg/L)
- 370
63.1

NICKEL (µg/L)
VANADIUM (µg/L)
- UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (µg/L)
- NA

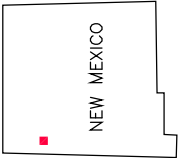
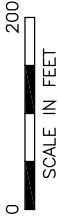
NOT ANALYZED



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB173

FIGURE 19-3
TOTAL METALS
GROUNDWATER MAP



GALLUP SITE LOCATION

LEGEND

- NDD-1** SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1** SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1** TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14** ALLUVIUM / CHINLE GP. MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

30 CHLORIDE (mg/L)

UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (mg/L)

250 CHLORIDE (mg/L)

NA NOT ANALYZED



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

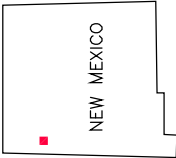
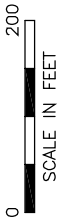
PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB174

FIGURE 20
CHLORIDE
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

- NDD-1

SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1

SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1

TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14

ALLUVIUM / CHINLE GP. MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- 2.7

1,2,4-TRIMETHYLBENZENE (µg/L)
- <0.231

1,3,5-TRIMETHYLBENZENE (µg/L)
- 0.87J

1-METHYLNAPHTHALENE (µg/L)
- 0.77J

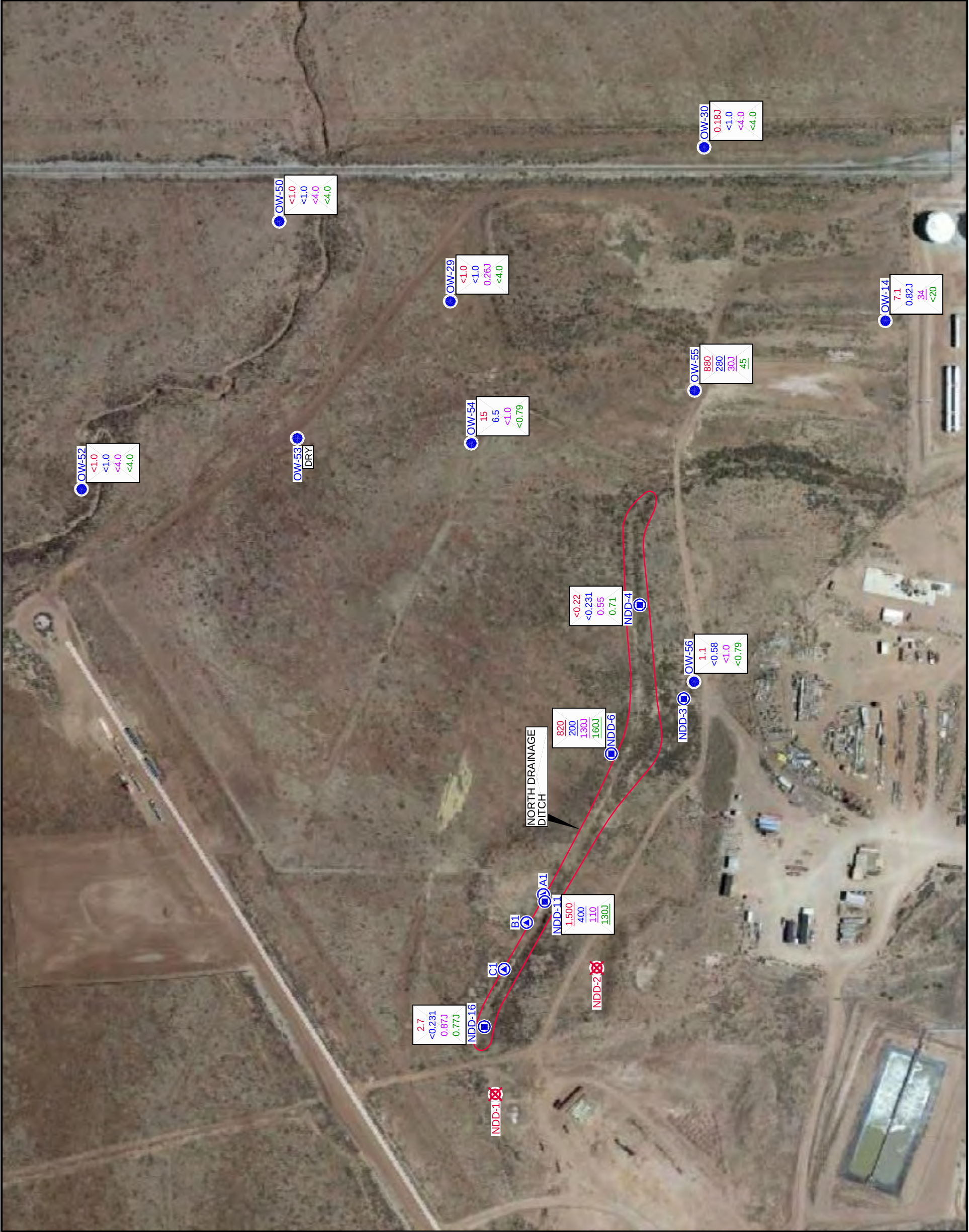
2-METHYLNAPHTHALENE (µg/L)
- UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (µg/L)
- 15

1,2,4-TRIMETHYLBENZENE (µg/L)
- 12

1,3,5-TRIMETHYLBENZENE (µg/L)
- 11

1-METHYLNAPHTHALENE (µg/L)
- 36

2-METHYLNAPHTHALENE (µg/L)

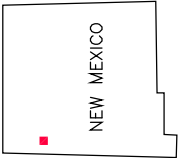
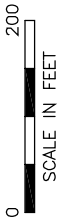


MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB119

FIGURE 21
TRIMETHYLBENZENE
AND METHYLNAPHTHALENE
GROUNDWATER MAP

Disorbo
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GALLUP SITE LOCATION

LEGEND

- NDD-1** SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1** SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1** TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14** ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

2.7	1,2-DICHLOROETHANE (µg/L)
<0.231	MTBE (µg/L)
0.873	NAPHTHALENE (µg/L)

UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (µg/L)

5	1,2-DICHLOROETHANE (µg/L)
143	MTBE (µg/L)
165	NAPHTHALENE (µg/L)



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

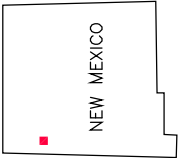
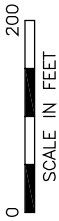
PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB121

FIGURE 22
VOCS
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

- NDD-1** SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1** SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1** TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14** ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

47	BENZENE (µg/L)
700	ETHYLBENZENE (µg/L)
750	TOLUENE (µg/L)
<0.734	XYLENES (µg/L)

UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (µg/L)

5	BENZENE (µg/L)
700	ETHYLBENZENE (µg/L)
750	TOLUENE (µg/L)
620	XYLENES (µg/L)

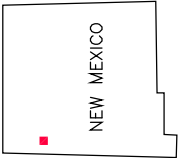
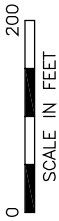


MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB120

FIGURE 23
BTX
GROUNDWATER MAP





GALLUP SITE LOCATION

LEGEND

- NDD-1

SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- A1

SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- NDD-1

TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14

ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- 4.8

GASOLINE RANGE ORGANICS (mg/L)

2.3

DIESEL RANGE ORGANICS (mg/L)
- 0.04

GASOLINE RANGE ORGANICS (mg/L)

0.04

DIESEL RANGE ORGANICS (mg/L)
- UNDERLINED CONCENTRATION VALUE EXCEEDS SCREENING LEVEL (mg/L)



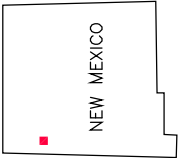
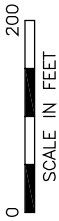
MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB175

FIGURE 24
TOTAL PETROLEUM HYDROCARBONS
GROUNDWATER MAP



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GALLUP SITE LOCATION

LEGEND

- PROPOSED SOIL BORING LOCATION
- SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- SURFACE WATER SAMPLE LOCATION AND IDENTIFICATION NUMBER
- TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER

- NDD-1
- A1
- NDD-1
- OW-14



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dBT56

FIGURE 25
PROPOSED SOIL BORING MAP



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Tables

Table 1	North Drainage Ditch Surface Water Analyses
Table 2	Northeast MTBE Plume Area Water Analyses
Table 3	Soil Boring Samples – Vapor Screening Results
Table 4	Groundwater Field Measurements
Table 5	Soil Screening Levels
Table 6	Groundwater Screening Levels
Table 7	Soil Analytical Results Summary
Table 8	Groundwater Analytical Results Summary

Table 1 - North Drainage Ditch Surface Water Analyses
Western Refining Southwest, Inc. - Gallup Refinery

Analyte	WQCC 20NMAC 6.2.3103 (Oct 2006)	40 CFR 141.62 MCL	NMED Tap Water (March 2017)	EPA Tapwater (June 2017)								
Sample ID					DITCH - W1	DITCH - W2	DITCH - W3	A1	B1	C1	North Drainage Ditch	NDD-3-GW
					Date Sampled							
Benzene	0.01	0.005	0.00454	NR	10/20/2009	NA	NA	10/20/2009	3/19/2015	3/19/2015	4/23/2015	5/14/2015
Toluene	0.75	1	1.09	NR	NA	NA	NA	0.13	5.4	5.3	3.6	0.0011
Ethyl Benzene	0.75	0.7	0.0149	NR	NA	NA	NA	0.63	0.58	0.55	0.53	<0.001
Total Xylenes	0.62	10	0.193	NR	NA	NA	NA	1.2	1.2	1.1	0.73	<0.0015
MTBE	NE	NE	0.143	NR	NA	NA	NA	0.2	<0.25	<0.25	0.098	0.26
1,2,4- trimethylbenzene	NE	NE	NE	0.056	NA	NA	NA	0.24	0.22	0.21	0.1	<0.001
1,3,5- trimethylbenzene	NE	NE	NE	0.6	NA	NA	NA	0.78	<0.1	<0.1	0.035	<0.001
naphthalene	NE	NE	0.00165	NR	NA	NA	NA	NA	NA	NA	0.17	<0.01
isopropylbenzene (cumene)	NE	NE	0.447	NR	NA	NA	NA	NA	NA	NA	0.027	0.047
n-propylbenzene	NE	NE	NE	NE	NA	NA	NA	NA	NA	NA	0.047	<0.001
1,2-dichloroethane	0.01	0.005		NR	NA	NA	NA	NA	NA	NA	<0.01	0.0063
GRO	NE	NE	NE	NE	NA	NA	NA	21	21	20	NA	0.56
DRO	NE	NE	NE	NE	NA	NA	NA	6.4	6.5	8.9	NA	1.1
MRO	NE	NE	NE	NE	NA	NA	NA	11	11	14	NA	<5.0
TPH (418.1)	NE	NE	NE	NE	27	6.9	5.4	NA	NA	NA	NA	NA
Arsenic	0.1	0.01	0.000513	NR	NA	NA	NA	0.16	0.28	0.28	NA	NA
Barium	1.0	2.0	3.3	NR	NA	NA	NA	12	20	19	NA	NA
Cadmium	0.01	0.005	0.00624	NR	NA	NA	NA	<0.002	<0.002	<0.002	NA	NA
Chromium (total)	0.05	0.1	0.00559	NR	NA	NA	NA	<0.006	<0.006	<0.006	NA	NA
Lead	0.05	0.015	NE	NR	NA	NA	NA	0.0058	0.012	0.014	NA	NA
Selenium	0.05	0.05	0.0987	NR	NA	NA	NA	<0.05	<0.05	<0.05	NA	NA
Silver	0.05	NE	0.0812	NR	NA	NA	NA	<0.005	<0.005	<0.005	NA	NA
Mercury	0.002	0.002	0.000626	NR	NA	NA	NA	<0.0002	<0.0002	<0.0002	NA	NA
0.16	Bolded and highlighted value exceeds screening level				0.01			bolded value is applicable screening level				

All values are reported in milligrams per liter

GRO - gasoline range organics

NE = Not established

NA = Not analyzed

DRO - diesel range organics

NR - Not required for determination of applicable screening level

MRO - motor oil range organics

TPH - total petroleum hydrocarbons

Table 2 - Northeast MTBE Plume Area Water Analyses
Western Refining Southwest, Inc. - Gallup Refinery

	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	1,2,4- Trimethyl benzene (mg/L)	1,3,5- Trimethyl benzene (mg/L)	1,2- Dichloro ethane (EDC) (mg/L)	Naphthale ne (mg/L)	1-Methyl naphthale ne (mg/L)	2- Methylna phthalene (mg/L)	1,1- Dichloroe thane (mg/L)	Isopropyl benzene (mg/L)	n- Butylbenz ene (mg/L)	n- Propylben zene (mg/L)	2,4- Dimethylp henol (mg/L)	Acetone (mg/L)	Sec- butylbenz ene (mg/L)
WQCC 20NMAC 6.2.3103	0.01	0.75	0.75	0.62	NE	NE	NE	0.01	NE	NE	NE	0.025	NE	NE	NE	NE	NE	NE
40 CFR 141.62 MCL	0.005	1.0	0.7	10	NE	NE	NE	0.005	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NMED Tap Water (March 2017)	0.00454	1.1	0.0149	0.193	0.143	NE	NE	0.002	0.00165	NE	NE	0.0275	0.447	NE	NE	0.354	14.1	NE
EPA RSL for Tap Water (June 2017)	0.00045	0.11	0.0015	0.019	0.014	0.0015	0.012	0.0017	0.00017	0.0011	0.15	0.0027	0.045	0.1	0.066	0.73	22	0.2
Well ID	DATE SAMPLED																	
OW-13	11/15/2016	<0.001	<0.001	<0.0015	0.044	<0.001	NA	0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	8/31/2016	0.0001	<0.001	<0.0015	0.038	<0.001	NA	0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/6/2016	<0.001	<0.001	<0.0015	0.036	<0.001	NA	0.75	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/4/2016	<0.001	<0.001	<0.0015	0.035	<0.001	NA	0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	10/27/2015	<0.001	0.0013	0.0016	0.035	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	8/11/2015	<0.001	<0.001	<0.0015	0.031	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/1/2015	<0.001	<0.001	<0.0015	0.025	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/9/2015	<0.001	<0.001	<0.0015	0.026	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/10/2014	<0.001	<0.001	<0.0015	0.027	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	9/15/2014	<0.001	<0.001	<0.0015	0.023	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/3/2014	<0.001	<0.001	<0.0015	0.02	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/7/2014	<0.001	<0.001	<0.0015	0.023	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/11/2013	<0.001	<0.001	<0.0015	0.017	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	9/4/2013 ²	<0.001	<0.001	<0.0015	0.014	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/13/2013	<0.001	<0.001	<0.0015	0.015	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/19/2013	<0.001	<0.001	<0.0015	0.012	<0.001	NA	<0.005	<0.01	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	11/27/2012	<0.001	<0.001	<0.0015	0.011	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	8/23/2012	<0.001	<0.001	<0.0015	0.0092	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	6/14/2012	<0.001	<0.001	<0.0015	0.0079	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	3/21/2012	<0.001	<0.001	<0.0015	0.0082	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	12/13/2011	<0.001	<0.001	<0.0015	0.0065	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	<0.001	<0.001	<0.001
	10/25/2011	<0.001	<0.001	<0.0015	0.0062	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/20/2011	<0.001	<0.001	<0.0015	0.0048	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	2/24/2011	<0.001	<0.001	<0.0015	0.0040	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/8/2010	<0.001	<0.001	<0.0015	0.0038	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	9/22/2010	<0.001	<0.001	<0.0015	0.0031	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/7/2010	<0.001	<0.001	<0.0015	0.0027	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/25/2010	<0.001	<0.001	<0.0015	0.0023	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/3/2009	<0.001	<0.001	<0.002	<0.0025	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/28/2009	<0.001	<0.001	<0.0015	0.0023	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/14/2009	<0.001	<0.001	<0.002	<0.0025	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/24/2009	<0.001	<0.001	<0.002	<0.0025	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/13/2008	<0.001	<0.001	<0.002	0.0016	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/19/2008	<0.001	<0.001	<0.0015	<0.001	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/27/2007	<0.001	<0.001	<0.0015	0.0013	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/27/2006	<0.001	<0.001	<0.0015	<0.0025	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2 - Northeast MTBE Plume Area Water Analyses
Western Refining Southwest, Inc. - Gallup Refinery

	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	1,2,4- Trimethyl benzene (mg/L)	1,3,5- Trimethyl benzene (mg/L)	1,2- Dichloro ethane (EDC) (mg/L)	Naphthale ne (mg/L)	1-Methyl naphthale ne (mg/L)	2- Methylna phthalene (mg/L)	1,1- Dichloroe thane (mg/L)	Isopropyl benzene (mg/L)	n- Butylbenz ene (mg/L)	n- Propylben zene (mg/L)	2,4- Dimethylp henol (mg/L)	Acetone (mg/L)	Sec- butylbenz ene (mg/L)
OW-14	WQCC 20NMAC 6.2:3:103	0.01	0.75	0.75	0.62	NE	NE	NE	NE	NE	NE	0.025	NE	NE	NE	NE	NE	NE
	40 CFR 141.62 MCL	0.005	1.0	0.7	10	NE	NE	0.005	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	NMED Tap Water (March 2017)	0.00454	1.1	0.0149	0.193	0.143	NE	0.002	0.00165	NE	NE	0.0275	0.447	NE	NE	0.354	14.1	NE
	EPA RSL for Tap Water (June 2017)	0.00045	0.11	0.0015	0.019	0.014	0.0015	0.012	0.0017	0.0011	0.15	0.0027	0.045	0.1	0.066	0.73	22	0.2
	Well ID																	
	DATE SAMPLED																	
	11/15/2016	8.7	0.0057	0.3	0.013	0.5	0.0084	0.0015	0.0034	0.02	0.03	<0.01	0.01	0.0034	0.013	NA	NA	0.0041
	8/31/2016	8.1	0.0029	0.25	0.008	0.58	0.0071	0.0008	<0.005	0.018	0.034	<0.005	0.0085	0.0013	0.011	NA	NA	0.0022
	6/6/2016	7.8	0.0026	0.23	0.012	0.62	0.008	0.0017	<0.01	0.019	0.033	NA	0.0033	<0.03	0.011	NA	NA	0.0031
	3/4/2016	6.5	<0.05	0.23	<0.075	0.68	<0.05	NA	<0.05	0.017	0.03	<0.05	<0.05	<0.15	<0.05	NA	NA	<0.05
	10/27/2015	6.2	<0.02	0.15	<0.03	0.57	<0.02	NA	<0.02	<0.04		<0.02	<0.02	<0.06	<0.02	NA	NA	<0.02
	8/10/2015	5.4	<0.01	0.16	<0.015	0.78	<0.01	NA	<0.01	<0.02		<0.04	<0.01	<0.03	<0.01	NA	NA	<0.01
	6/1/2015	4.6	<0.02	0.16	<0.03	0.74	<0.02	NA	<0.02	<0.04	<0.08	<0.02	<0.02	<0.06	<0.02	NA	NA	<0.02
	3/9/2015	3.9	<0.02	0.16	<0.03	0.76	<0.02	NA	<0.02	<0.04	<0.08	<0.02	<0.02	<0.06	<0.02	NA	NA	<0.02
	11/10/2014	3.6	0.015	0.17	<0.015	0.81	<0.01	NA	<0.01	<0.02	0.044	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	9/15/2014	3.8	<0.02	0.16	<0.03	0.82	<0.02	NA	<0.02	<0.04	0.016	<0.02	<0.02	<0.06	<0.02	NA	NA	<0.02
	6/3/2014	3.7	<0.02	0.12	<0.03	0.93	<0.02	NA	<0.02	<0.04	<0.08	<0.08	<0.02	<0.06	<0.02	NA	NA	<0.02
	3/7/2014	4.0	0.026	0.14	0.032	1.1	<0.01	NA	<0.01	<0.02	<0.04	<0.04	<0.01	<0.03	<0.01	NA	NA	<0.01
	11/11/2013	3.3	0.046	0.13	0.019	1.1	<0.005	NA	<0.005	<0.01	0.027	<0.005	0.0066	<0.015	<0.005	NA	NA	<0.005
	9/4/2013 ²	2.6	<0.005	0.063	<0.0075	0.94	<0.005	NA	<0.005	<0.01	0.024	<0.005	0.006	<0.015	<0.005	NA	NA	<0.005
	6/13/2013	3.4	<0.01	0.073	<0.015	1.3	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	3/19/2013	2.8	<0.01	0.065	<0.015	1.3	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	11/27/2012	2.7	<0.01	0.056	<0.015	1.4	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	8/23/2012	2.1	<0.01	0.037	<0.015	1.6	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	6/14/2012	2.6	<0.01	0.053	<0.015	1.2	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	3/21/2012	2.3	<0.01	0.051	<0.015	1.4	<0.01	NA	<0.01	<0.02	<0.04	<0.01	<0.01	<0.03	<0.01	NA	NA	<0.01
	12/13/2011	1.5	<0.005	0.036	<0.0075	1.3	<0.005	NA	<0.005	<0.01	0.021	<0.005	0.007	<0.005	<0.005	NA	NA	<0.005
	10/24/2011	1.4	<0.005	0.045	<0.0075	1.4	<0.005	NA	<0.005	<0.01	0.022	<0.005	0.008	<0.005	<0.005	NA	NA	<0.005
	6/20/2011	1.8	0.0015	0.0610	<0.0015	1.6	0.001	NA	0.002	0.020	0.020	0.001	0.007	<0.001	0.002	NA	NA	0.002
	2/24/2011	1.3	0.0019	0.0420	<0.0015	1.4	0.001	NA	0.002	0.019	0.019	<0.001	0.005	<0.001	0.001	NA	NA	0.003
	11/8/2010	0.63	<0.001	0.0180	<0.0015	1.3	0.001	NA	0.002	0.022	0.022	<0.001	0.004	<0.001	<0.001	NA	NA	0.003
	9/22/2010	0.47	<0.001	0.0083	<0.0015	1.4	<0.001	NA	0.002	0.022	0.022	<0.001	0.003	<0.001	<0.001	NA	NA	0.003
	6/7/2010	0.33	0.0018	0.0085	<0.0015	1.4	0.001	NA	0.002	0.020	0.020	<0.001	0.003	<0.001	<0.001	NA	NA	0.002
	3/24/2010	0.25	<0.005	0.0100	<0.0075	1.5	<0.005	<0.005	<0.005	<0.01	<0.02	<0.005	<0.005	<0.005	<0.005	NA	NA	<0.005
	11/12/2009	0.034	0.0030	0.0064	<0.002	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/30/2009	0.074	0.0033	<0.001	<0.0015	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/12/2009	0.11	0.0029	0.0049	<0.002	0.97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/23/2009	0.013	0.0014	0.0055	<0.001	1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/12/2008	0.0082	<0.001	<0.001	<0.0015	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/21/2008	0.0035	<0.001	<0.001	<0.0015	1.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/1/2008	0.0140	<0.001	<0.001	<0.0015	0.92	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/28/2006	0.0042	<0.001	0.0025	<0.003	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/27/2006	0.0034	<0.001	<0.001	<0.003	0.016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	1,2,4- Trimethyl benzene (mg/L)	1,3,5- Trimethyl benzene (mg/L)	1,2- Dichloro ethane (EDC) (mg/L)	Naphthale ne (mg/L)	1-Methyl naphthale ne (mg/L)	2- Methylna phthalene (mg/L)	1,1- Dichloroe thane (mg/L)	Isopropyl benzene (mg/L)	n- Butylbenz ene (mg/L)	n- Propylben zene (mg/L)	2,4- Dimethylp henol (mg/L)	Acetone (mg/L)	Sec- butylbenz ene (mg/L)
WQCC 20NMAC 6.2.3103	0.01	0.75	0.75	0.62	NE	NE	NE	0.01	NE	NE	NE	0.025	NE	NE	NE	NE	NE	NE
40 CFR 141.62 MCL	0.005	1.0	0.7	10	NE	NE	NE	0.005	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NMED Tap Water (March 2017)	0.00454	1.1	0.0149	0.193	0.143	NE	NE	0.002	0.00165	NE	NE	0.0275	0.447	NE	NE	0.354	14.1	NE
EPA RSL for Tap Water (June 2017)	0.00045	0.11	0.0015	0.019	0.014	0.0015	0.012	0.0017	0.00017	0.0011	0.15	0.0027	0.045	0.1	0.066	0.73	22	0.2
Well ID	DATE SAMPLED																	
OW-29	11/15/2016	<0.005	0.0011	<0.0075	3.4	<0.005	NA	0.0018	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	8/31/2016	0.0005	<0.001	<0.0015	3.0	<0.001	NA	0.0007	<0.002	0.0003	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/6/2016	<0.005	<0.005	<0.0075	3.1	<0.005	NA	<0.005	<0.01	<0.001	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	3/4/2016	<0.005	<0.005	<0.0075	3.2	<0.005	NA	0.0002	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	10/27/2015	<0.005	<0.005	<0.0075	3.1	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	8/11/2015	<0.005	<0.005	<0.0075	3.1	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	6/1/2015	<0.005	<0.005	<0.0075	2.6	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	3/9/2015	<0.001	<0.001	<0.0015	3.2	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/11/2014	<0.005	<0.005	<0.015	3.0	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	9/15/2014	<0.005	<0.005	<0.0075	2.5	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	6/214	<0.001	<0.001	<0.0015	2.0	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/7/2014	<0.001	<0.001	<0.0015	2.1	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/11/2013	<0.002	<0.002	<0.003	1.7	<0.002	NA	<0.002	<0.004	<0.008	NA	<0.002	<0.002	<0.006	<0.002	NA	NA	<0.002
	9/4/2013 ²	<0.001	<0.001	<0.0015	1.3	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/13/2013	<0.001	<0.001	<0.0015	1.4	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/19/2013	<0.001	<0.001	<0.0015	1.1	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/27/2012	<0.001	<0.001	<0.0015	0.9	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	8/23/2012	<0.001	<0.001	<0.0015	1.0	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/14/2012	<0.001	<0.001	<0.0015	0.47	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	3/21/2012	<0.001	<0.001	<0.0015	0.62	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	12/13/2011	<0.001	<0.001	<0.0015	0.49	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	10/24/2011	<0.001	<0.001	<0.0015	0.47	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	6/20/2011	<0.001	<0.001	<0.0015	0.47	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	2/24/2011	<0.001	<0.001	<0.0015	0.3	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	11/9/2010	<0.001	<0.001	<0.0015	0.22	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	9/22/2010	<0.001	<0.001	<0.0015	0.19	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	6/7/2010	<0.001	<0.001	<0.0015	0.15	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	3/25/2010	<0.001	<0.001	<0.0015	0.12	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	11/3/2009	<0.001	<0.001	<0.002	0.082	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/29/2009	<0.001	<0.001	<0.0015	0.049	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/14/2009	<0.001	<0.001	<0.002	0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/25/2009	<0.001	<0.001	<0.002	0.021	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/14/2008	<0.001	<0.001	<0.0015	0.015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/19/2008	<0.001	<0.001	<0.0015	0.0092	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/28/2007	<0.001	<0.001	<0.0015	0.0043	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/24/2006	<0.001	<0.001	<0.003	<0.0025	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	1,2,4- Trimethyl benzene (mg/L)	1,3,5- Trimethyl benzene (mg/L)	1,2- Dichloro ethane (EDC) (mg/L)	Naphthale ne (mg/L)	1-Methyl naphthale ne (mg/L)	2- Methylna phthalene (mg/L)	1,1- Dichloroe thane (mg/L)	Isopropyl benzene (mg/L)	n- Butylbenz ene (mg/L)	n- Propylben zene (mg/L)	2,4- Dimethylp henol (mg/L)	Acetone (mg/L)	Sec- butylbenz ene (mg/L)
WQCC 20NMAC 6.2.3103	0.01	0.75	0.75	0.62	NE	NE	NE	0.01	NE	NE	NE	0.025	NE	NE	NE	NE	NE	NE
40 CFR 141.62 MCL	0.005	1.0	0.7	10	NE	NE	NE	0.005	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NMED Tap Water (March 2017)	0.00454	1.1	0.0149	0.193	0.143	NE	NE	0.002	0.00165	NE	NE	0.0275	0.447	NE	NE	0.354	14.1	NE
EPA RSL for Tap Water (June 2017)	0.00045	0.11	0.0015	0.019	0.014	0.0015	0.012	0.0017	0.00017	0.0011	0.15	0.0027	0.045	0.1	0.066	0.73	22	0.2
Well ID	DATE SAMPLED																	
OW-30	11/14/2016	<0.005	<0.005	<0.005	<0.0075	3.5	NA	0.0016	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	8/31/2016	<0.001	<0.001	<0.001	<0.0015	3.0	NA	0.0003	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	0.0004
	6/6/2016	0.0012	<0.005	<0.005	<0.0075	3.1	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	0.0006
	3/8/2016	0.0031	<0.002	<0.002	<0.003	3.5	NA	0.005	<0.004	<0.008	NA	<0.002	<0.002	<0.006	<0.002	NA	NA	<0.002
	10/27/2015	<0.005	<0.005	<0.0075	3.5	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	8/10/2015	<0.001	<0.001	<0.001	<0.0015	3.8	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/2/2015	<0.005	<0.005	<0.0075	3.1	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	3/9/2015	<0.001	<0.001	<0.0015	4.0	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/11/2014	<0.005	<0.005	<0.0015	3.6	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.005	<0.005	<0.015	<0.005	NA	NA	<0.005
	9/17/2014	<0.001	<0.001	<0.0015	2.8	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.004	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/3/2014	<0.001	<0.001	<0.0015	2.7	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/7/2014	<0.001	<0.001	<0.0015	2.9	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	11/11/2013	<0.001	<0.001	<0.0015	2.6	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	9/4/2013 ²	<0.001	<0.001	<0.0015	2.1	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/17/2013	<0.001	<0.001	<0.0015	2.5	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	3/19/2013	<0.005	<0.005	<0.0075	2.0	<0.005	NA	<0.005	<0.01	<0.02	NA	<0.02	<0.005	<0.015	<0.005	NA	NA	<0.005
	11/27/2012	<0.001	<0.001	<0.0015	2.2	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	8/23/2012	<0.001	<0.001	<0.0015	2.3	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.003	<0.001	NA	NA	<0.001
	6/14/2012	<0.001	<0.001	<0.0015	1.5	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	3/21/2012	<0.001	<0.001	<0.0015	1.6	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	12/15/2011	<0.001	<0.001	<0.0015	1.3	<0.001	NA	<0.001	<0.002	<0.004	NA	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	10/24/2011	<0.001	<0.001	<0.0015	1.3	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	6/20/2011	<0.001	<0.001	<0.0015	1.3	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	2/24/2011	<0.001	<0.001	<0.0015	1.1	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	11/8/2010	<0.001	<0.001	<0.0015	1.1	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	9/27/2010	<0.001	<0.001	<0.0015	1.1	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	6/4/2010	<0.001	<0.001	<0.0015	1.0	<0.001	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	3/24/2010	<0.005	<0.005	<0.0075	1.1	<0.005	NA	<0.001	<0.002	<0.004	<0.004	<0.001	<0.001	<0.001	<0.001	NA	NA	<0.001
	11/2/2009	<0.001	<0.001	<0.002	1.1	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	7/30/2009	<0.001	<0.001	<0.0015	1.1	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	5/13/2009	<0.001	<0.001	<0.002	1.1	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2/23/2009	<0.001	<0.001	<0.002	1.0	<0.001	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	11/12/2008	<0.001	<0.001	<0.0015	0.88	<0.0015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	8/20/2008	<0.001	<0.001	<0.0015	1.1	<0.0015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/28/2007	<0.001	<0.001	<0.0015	0.29	<0.0015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	10/27/2006	<0.001	<0.001	<0.003	<0.0025	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2 - Northeast MTBE Plume Area Water Analyses
Western Refining Southwest, Inc. - Gallup Refinery

	Benzene (mg/L)	Toluene (mg/L)	Ethyl Benzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	1,2,4- Trimethyl benzene (mg/L)	1,3,5- Trimethyl benzene (mg/L)	1,2- Dichloro ethane (EDC) (mg/L)	Naphthale ne (mg/L)	1-Methyl naphthale ne (mg/L)	2- Methylna phthalene (mg/L)	1,1- Dichloroe thane (mg/L)	Isopropyl benzene (mg/L)	n- Butylbenz ene (mg/L)	n- Propylben zene (mg/L)	2,4- Dimethylp henol (mg/L)	Acetone (mg/L)	Sec- butylbenz ene (mg/L)
WQCC 20NMAC 6.2.3103	0.01	0.75	0.75	0.62	NE	NE	NE	0.01	NE	NE	NE	0.025	NE	NE	NE	NE	NE	NE
40 CFR 141.62 MCL	0.005	1.0	0.7	10	NE	NE	NE	0.005	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NMED Tap Water (March 2017)	0.00454	1.1	0.0149	0.193	0.143	NE	NE	0.002	0.00165	NE	NE	0.0275	0.447	NE	NE	0.354	14.1	NE
EPA RSL for Tap Water (June 2017)	0.00045	0.11	0.0015	0.019	0.014	0.0015	0.012	0.0017	0.00017	0.0011	0.15	0.0027	0.045	0.1	0.066	0.73	22	0.2
Well ID	DATE SAMPLED																	
OW-50	9/9/2016	<0.001	<0.001	<0.001	0.0002	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	8/11/2015	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/15/2014	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/4/2013 ²	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	11/27/2012	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	8/23/2012	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/13/2012	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	3/22/2012	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	12/15/2011	<0.005	<0.005	<0.0075	<0.005	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	10/25/2011	<0.001	<0.001	<0.0015	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/20/2011	<0.001	<0.001	<0.0015	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	3/1/2011	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	11/9/2010	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/27/2010	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/1/2010	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	3/16/2010	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	11/17/2009	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/9/2016	<0.001	<0.001	<0.001	0.00046	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	8/11/2015	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/15/2014	<0.001	<0.001	<0.001	<0.0015	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
OW-52	9/4/2013 ²	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	11/27/2012	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	8/23/2012	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/13/2012	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	3/22/2012	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	12/13/2011	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	10/25/2011	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/20/2011	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	3/1/2011	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	11/9/2010	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	9/27/2010	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
	6/1/2010	<0.001	<0.001	<0.001	<0.001	NA	NA	NA	NA	NA	NA	<0.001	<0.001	<0.001	NA	NA	NA	<0.001
All values expressed in milligrams per liter																		

DEFINITIONS

NE = Not established

NA = Not analyzed

Bold and highlighted values represent values above the applicable standards

Bold screening level is applicable screening under RCRA Permit

STANDARDS

WQCC 20 NMAC 6.2.3103 - Standards for Ground Water of 10,000 mg/l TDS Concentration or Less.

a) Human Health Standards; b) Other Standards for Domestic Water

40 CFR 141.62 Maximum Contaminant Levels

EPA Regional Screening Level (RSL) Summary Table - June 2017

NMED Tap Water (March 2017)

Table 3
Soil Boring Samples - Vapor Screening Results
Western Refining Southwest Inc. - Gallup Refinery
Gallup, New Mexico

Sample Interval Depth (ftbgl)	NDD-1 (ppm)	NDD-2 (ppm)	NDD-3 (ppm)	NDD-4 (ppm)	NDD-5 (ppm)	NDD-6 (ppm)	NDD-7 (ppm)	NDD-8 (ppm)	NDD-9 (ppm)	NDD-10 (ppm)	NDD-11 (ppm)	NDD-12 (ppm)	NDD-13 (ppm)	NDD-14 (ppm)	NDD-15 (ppm)	NDD-16 (ppm)	NDD-17 (ppm)	OW-53 (ppm)	OW-54 (ppm)	OW-55 (ppm)	OW-56 (ppm)
0 - 2 ¹	4.1	9.7	14.2	3.5/7.1	6.5/339	8.8/1639	3.3/9.4	11.3/904	18.5/1530	8.8/12.3	3.2/4.6	8.9/66.4	5.6/8.0	5.7/1.6	7.1/6.3	5.1/14.3	4.5/9.8	5.3	4.5	9.4	10.5
2 - 4	8.1	14.4	12.2	5.9	TD@2 ftbgl	129	TD@2 ftbgl	TD@2 ftbgl	TD@2 ftbgl	TD@2 ftbgl	SAT	TD@2 ftbgl	TD@2 ftbgl	TD@2 ftbgl	TD@2 ftbgl	5.3	TD@2 ftbgl	4.8	5.7	11.2	11.0
4 - 6	9.3	17.1	14.4	7.0		1780					SAT					5.6		2.4	10.2	16.8	11.4
6 - 8	10.1	18.0	9.9	3.2		SAT					SAT					12.1		5.5	7.3	13.3	8.3
8 - 10	9.9	14.8	10.7	4.9		SAT					SAT					12.3		2.3	8.3	19.2	13.6
10 - 12	8.2	16.3	11.9	7.8		17.9					29.3					12.6		2.3	13.6	18.5	16.7
12 - 14	6.1	13.5	13.9	7.9		TD@12.5 ftbgl					21.2					12.0		5.3	12.6	17.3	19.1
14 - 16	5.2	12.2	13.5	6.7							TD@14 ftbgl					12.9		2.1	216.0	14.9	13.6
16 - 18	5.1	12.4	TD@16 ftbgl	5.9												SAT		5.3	1538.0	2530.0	TD@16.5ftbgl
18 - 20	6.3	10.8		3.0												SAT		4.3	370.0	SAT	
20 - 22	TD@20 ftbgl	TD@20 ftbgl		TD@20 ftbgl												4.8		4.6	49.4	SAT	
22 - 24																4.2		9.9	SAT	SAT	
24 - 26																TD@24 ftbgl		5.6	SAT	185.0	
26 - 28																		7.5	SAT	SAT	
28 - 30																		2.6	SAT	125.9	
30 - 32																		3.3	TD@30 ftbgl	47.5	
32 - 34																		3.8		TD@32 ftbgl	
34 - 36																		TD@34 ftbgl			
36 - 38																					

ftbgl - feet below ground level ppm - parts per million SAT - Interval was saturated. No reading was collected.

NR - NR - No sample recovery. No reading was collected.

1 - borings with two values indicate results for the 0'-0.5' and 0.5'-2.0' intervals

TABLE 4
Groundwater Field Measurements
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

WELL	DATE	DEPTH TO GROUNDWATER (ft) ¹	WELL SCREEN INTERVAL (ft)	TEMPERATURE °C	SPECIFIC CONDUCTIVITY (uS/cm)	DISSOLVED OXYGEN (mg/L)	pH	OXYGEN REDUCTION POTENTIAL
NDD-3	05/14/15	7.69	5 - 15	10	2666	16.20	6.95	401.8
NDD-4	05/26/16	11.43	7 - 17	11.8	2340	7.33	7.59	95.5
NDD-6	05/26/16	1.80	2 - 12	11.9	2807	13.24	7.09	87.8
NDD-11	05/26/16	3.20	2 - 12	11.9	2420	12.52	7.22	91.5
NDD-16	05/26/16	14.35	12 - 22	10.9	3231	14.45	7.29	34.3
OW-53	06/01/16	DRY	16 - 31	--	--	--	--	--
OW-54	06/01/16	16.53	13 - 28	14.4	2291	3.40	7.19	130.4
OW-55	06/01/16	16.83	13 - 28	13.4	2675	4.02	6.93	85.1
OW-56	06/01/16	14.75	6 - 16	11.6	2303	10.77	7.52	152.5

(1) Depth to groundwater estimated from land surface

Table 5
Soil Screening Levels
Western Refining Southwest, Inc. - 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	EPA MCL- GW_ based SSL_ SoilGW
Metals (mg/kg)													
Antimony	3.13E+01	n	3.10E+01	n	5.19E+02	n	1.42E+02	n	4.70E+02	n	2.71E-01	3.50E-01	2.70E-01
Arsenic	7.07E+00	c	6.80E-01	c*	3.59E+01	c	4.12E+01	n	3.00E+00	c	2.92E-01	1.50E-03	2.90E-01
Barium	1.56E+04	n	1.50E+04	n	2.55E+05	nl	4.39E+03	n	2.20E+05	nm	8.23E+01	1.60E+02	8.20E+01
Beryllium	1.56E+02	n	1.60E+02	n	2.58E+03	n	1.48E+02	n	2.30E+03	n	3.16E+00	1.90E+01	3.20E+00
Cadmium	7.05E+01	n	7.10E+01	n	1.11E+03	n	7.21E+01	n	9.80E+02	n	3.76E-01	6.90E-01	3.80E-01
Chromium	9.66E+01	c			5.05E+02	c	1.34E+02	n			1.80E+05		1.80E+05
Cobalt	2.34E+01	n	2.30E+01	n	3.88E+02	n	3.67E+01	n	3.50E+02	n	2.70E-01	2.70E-01	-
Cyanide	1.11E+01	n	2.70E+00	n	6.28E+01	n	1.20E+01	n	1.20E+01	n	3.56E-02	1.50E-02	2.00E+00
Iron	5.48E+04	n	5.50E+04	n	9.08E+05	n	2.48E+05	n	8.20E+05	n	3.48E+02	3.50E+02	
Lead	-	-	-	-	-	-	-	IEUBK	8.00E+02	nL	2.60E-03	-	1.40E+01
Manganese	1.05E+04	n	1.80E+03	n	1.60E+05	n	4.64E+02	n	2.60E+04	n	1.31E+02	2.80E+01	
Mercury	2.36E+01	n	9.40E+00	n	1.11E+02	n	2.05E+01	n	4.00E+01	ns	1.04E-01	3.30E-02	1.00E-01
Nickel	1.56E+03	n	8.40E+02	c	2.57E+04	n	7.53E+02	n	1.20E+04	c	2.42E+01		-
Selenium	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.75E+03	n	5.80E+03	n	2.59E-01	5.20E-01	2.60E-01
Silver	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.77E+03	n	5.80E+03	n	6.88E-01	8.00E-01	-
Vanadium	3.94E+02	n	3.90E+02	n	6.53E+03	n	6.14E+02	n	5.80E+03	n	6.31E+01	8.60E+01	-
Zinc	2.35E+04	n	2.30E+04	n	3.89E+05	n	1.06E+05	n	3.50E+05	nm	3.71E+02	3.70E+02	-
Volatiles (mg/kg)													
1,1,1,2-Tetrachloroethane	2.78E+01	c	2.00E+00	c	1.36E+02	c	6.53E+02	c	8.80E+00	cs	1.80E-03	2.20E-04	-
1,1,1,1-Trichloroethane	1.43E+04	n	8.10E+03	ns	7.19E+04	n	1.35E+04	n	3.60E+04	ns	6.38E-02	2.80E+00	7.00E-02
1,1,2,2-Tetrachloroethane	7.93E+00	c	6.00E-01	c	3.91E+01	c	1.95E+02	c	2.70E+00	c	2.40E-04	2.80E-05	-
1,1,2-Trichloroethane	2.59E+00	n	1.10E+00	c	1.23E+01	c	2.28E+00	n	5.00E+00	c	1.34E-03	8.90E-05	1.60E-03
1,1-Dichloroethane	7.79E+01	c	3.60E+00	c	3.80E+02	c	1.80E+03	c	1.60E+01	c	6.80E-03	7.80E-04	-
1,1-Dichloroethene	4.36E+02	n	2.30E+02	n	2.24E+03	n	4.20E+02	n	1.00E+03	n	2.40E-03	1.00E-01	2.50E-03
1,1-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	6.30E+01	n	-	-	-	-	9.30E+02	n	-	2.10E-02	-
1,2,3-Trichloropropane	5.10E-02	c	5.10E-03	c	1.21E+00	c	6.26E+00	n	1.10E-01	c	2.91E-06	3.20E-07	-
1,2,4-Trichlorobenzene	8.22E+01	n	2.40E+01	n	4.19E+02	n	7.84E+01	n	1.10E+02	ns	1.55E-01	3.30E-03	2.00E-01
1,2,4-Trimethylbenzene	-	-	5.80E+01	n	-	-	-	-	2.40E+02	ns	-	2.10E-02	-
1,2-Dibromo-3-chloropropane	8.51E-02	c	5.30E-03	c	1.17E+00	c	5.48E+00	c	6.40E-02	c	6.95E-05	1.44E-07	8.60E-05
1,2-Dibromoethane (EDB)	6.68E-01	c	3.60E-02	c	3.28E+00	c	1.62E+01	c	1.60E-01	c	1.18E-05	2.10E-06	1.40E-05
1,2-Dichlorobenzene	2.14E+03	n	1.80E+03	ns	1.29E+04	n	2.47E+03	n	9.30E+03	ns	4.54E-01	3.00E-01	5.80E-01
1,2-Dichloroethane (EDC)	8.25E+00	c	4.60E-01	c	4.03E+01	c	5.34E+01	n	2.00E+00	c	1.19E-03	4.80E-05	1.40E-03
1,2-Dichloropropane	1.76E+01	c	1.00E+00	c*	8.61E+01	c	2.52E+01	n	4.70E+00	c*	1.39E-03	1.50E-04	1.70E-03
1,3,5-Trimethylbenzene	-	-	7.80E+02	n	-	-	-	-	1.20E+04	n	-	1.70E-01	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichloropropane	-	-	1.60E+03	n	-	-	-	-	2.30E+04	ns	-	1.30E-01	-
1,4-Dichlorobenzene	1.29E+03	c	2.60E+00	c	6.73E+03	c	2.48E+04	c	1.10E+01	c	5.61E-02	4.60E-04	7.20E-02

Table 5
Soil Screening Levels
Western Refining Southwest, Inc. - 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	EPA MCL- GW_ based SSL_ SoilGW
1-Methylnaphthalene	1.72E+02	c	1.80E+01	c	8.13E+02	c	6.06E+03	c	7.30E+01	c	4.47E-02	5.80E-03	-
2,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone	3.73E+04	n	2.70E+04	ns	4.09E+05	n	9.12E+04	n	1.90E+05	nms	1.00E+00	1.20E+00	-
2-Chlorotoluene	1.56E+03	n	1.60E+03	ns	2.60E+04	n	7.08E+03	n	2.30E+04	ns	1.78E-01	2.30E-01	-
2-Hexanone	-	-	2.00E+02	-	-	-	-	-	1.30E+03	-	-	8.80E-03	-
2-Methylnaphthalene	2.32E+02	n	2.40E+02	n	3.37E+03	n	1.00E+03	n	3.00E+03	ns	1.38E-01	1.90E-01	-
4-Chlorotoluene	-	-	1.60E+03	ns	-	-	-	-	2.30E+04	ns	-	2.40E-01	-
4-Isopropyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	5.81E+03	n	-	-	8.15E+04	n	2.02E+04	n	-	-	2.40E-01	-	-
Acetone	6.63E+04	n	6.10E+04	n	9.59E+05	n	2.41E+05	n	6.70E+05	nms	2.49E+00	2.90E+00	-
Benzene	1.77E+01	c	1.20E+00	c*	8.65E+01	c	1.41E+02	n	5.10E+00	c*	2.09E-03	2.30E-04	2.60E-03
Bromobenzene	-	-	2.90E+02	n	-	-	-	-	1.80E+03	n	-	4.20E-02	-
Bromodichloromethane	6.14E+00	c	2.90E-01	c	2.99E+01	c	1.41E+02	c	1.30E+00	c	3.10E-04	3.60E-05	-
Bromoform	6.74E+02	c	1.90E+01	c*	1.75E+03	c	5.38E+03	n	8.60E+01	c*	7.34E-03	8.70E-04	-
Bromomethane	1.76E+01	n	6.80E+00	n	9.37E+01	n	1.77E+01	n	3.00E+01	n	1.71E-03	1.90E-03	-
Carbon disulfide	1.54E+03	n	7.70E+02	ns	8.47E+03	n	1.61E+03	n	3.50E+03	ns	2.21E-01	2.40E-01	-
Carbon tetrachloride	1.06E+01	c	6.50E-01	c	5.21E+01	c	2.00E+02	n	2.90E+00	c	1.84E-03	1.80E-04	1.90E-03
Chlorobenzene	3.76E+02	n	2.80E+02	n	2.14E+03	n	4.08E+02	n	1.30E+03	ns	5.39E-02	5.30E-02	6.80E-02
Chloroethane	1.88E+04	n	1.40E+04	ns	8.87E+04	n	1.65E+04	n	5.70E+04	ns	5.37E+00	5.90E+00	-
Chloroform	5.85E+00	c	3.20E-01	c	2.84E+01	c	1.33E+02	c	1.40E+00	c	5.46E-04	6.10E-05	-
Chloromethane	4.08E+01	c	1.10E+02	n	1.99E+02	c	2.33E+02	n	4.60E+02	n	4.76E-03	4.90E-02	-
cis-1,2-DCE	1.56E+02	n	1.60E+02	n	2.60E+03	n	7.08E+02	n	2.30E+03	ns	1.76E-02	1.10E-02	2.10E-02
cis-1,3-Dichloropropene	2.91E+01	c	1.80E+00	c*	1.46E+02	c	1.29E+02	n	8.20E+00	c*	1.40E-03	1.70E-04	-
Dibromochloromethane	1.38E+01	c	7.50E-01	c	6.69E+01	c	3.38E+02	c	3.30E+00	c	3.77E-04	4.50E-05	2.10E-02
Dibromomethane	5.74E+01	c	2.30E+01	n	2.86E+02	c	5.34E+01	c	9.80E+01	ns	1.68E-03	2.00E-03	-
Dichlorodifluoromethane	1.80E+02	n	8.70E+01	n	8.57E+02	n	1.59E+02	n	3.70E+02	n	3.61E-01	3.00E-01	-
Ethylbenzene	7.45E+01	c	5.80E+00	c	3.65E+02	c	1.76E+03	c	2.50E+01	c	6.15E-01	1.70E-03	7.80E-01
Hexachlorobutadiene	6.16E+01	n	1.20E+00	c**	5.17E+01	c	2.69E+02	n	5.30E+00	c*	2.07E-03	2.60E-04	-
Isopropylbenzene	2.35E+03	n	1.90E+03	ns	1.41E+04	n	2.71E+03	n	9.90E+03	ns	5.69E-01	7.40E-01	-
Methyl tert-butyl ether (MTBE)	9.68E+02	c	4.70E+01	c	4.78E+03	c	2.40E+04	c	2.10E+02	c	2.77E-02	3.20E-03	-
Methylene chloride	4.09E+02	n	5.70E+01	c	5.11E+03	n	1.20E+03	n	1.00E+03	c	1.11E-03	2.91E-03	1.30E-03
Naphthalene	1.16E+03	n	3.80E+00	c*	1.68E+04	n	5.02E+03	n	1.70E+01	c*	4.11E-03	5.40E-04	-
n-Butylbenzene	-	-	3.90E+03	ns	-	-	-	-	5.80E+04	ns	-	3.20E+00	-
n-Propylbenzene	-	-	3.80E+03	ns	-	-	-	-	2.40E+04	ns	-	1.20E+00	-
sec-Butylbenzene	-	-	7.80E+03	ns	-	-	-	-	1.20E+05	nms	-	5.90E+00	-
Styrene	7.23E+03	n	6.00E+03	ns	5.09E+04	n	1.01E+04	n	3.50E+04	ns	8.55E-02	1.30E+00	1.10E-01
tert-Butylbenzene	-	-	7.80E+03	ns	-	-	-	-	1.20E+05	nms	-	1.60E+00	-
Tetrachloroethene (PCE)	1.10E+02	n	2.40E+01	c**	6.24E+02	n	1.19E+02	n	1.00E+02	c**	1.99E-03	5.10E-03	2.30E-03
Toluene	5.22E+03	n	4.90E+03	ns	6.11E+04	n	1.40E+04	n	4.70E+04	ns	5.55E-01	7.60E-01	6.90E-01

Table 5
Soil Screening Levels
Western Refining Southwest, Inc. - 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	EPA MCL- GW_ based SSL_ SoilGW
trans-1,2-DCE	2.93E+02	n	1.60E+03	n	1.60E+03	ns	3.03E+02	n	2.30E+04	ns	2.52E-02	1.10E-01	3.10E-02
trans-1,3-Dichloropropene	2.91E+01	c	1.80E+00	c*	1.46E+02	c	1.29E+02	n	8.20E+00	c*	1.40E-03	1.70E-04	-
Trichloroethene (TCE)	6.72E+00	n	9.40E-01	c**	3.61E+01	n	6.84E+00	n	6.00E+00	c**	1.55E-03	1.80E-04	1.80E-03
Trichlorofluoromethane	1.22E+03	n	7.30E+02	n	5.98E+03	n	1.12E+03	n	3.10E+03	ns	7.84E-01	7.30E-01	-
Vinyl chloride	7.41E-01	c	5.90E-02	c	2.83E+01	c	1.60E+02	c	1.70E+00	c	6.70E-04	6.50E-06	6.90E-04
Xylenes, Total	8.63E+02	n	5.50E+02	ns	4.24E+03	n	7.91E+02	n	2.40E+03	ns	7.72E+00	1.90E-01	
Semi-volatiles (mg/kg)													
1,2,4-Trichlorobenzene	8.22E+01	n	2.40E+01	c**	4.19E+02	n	7.84E+01	n	1.10E+02	c**	1.55E-01	3.30E-03	2.00E-01
1,2-Dichlorobenzene	2.14E+03	n	1.80E+03	ns	1.29E+04	n	2.47E+03	n	9.30E+03	ns	4.54E-01	3.00E-01	5.80E-01
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	1.29E+03	c	2.60E+00	c	6.73E+03	c	2.48E+04	n	1.10E+01	c	5.61E-02	4.60E-04	7.20E-02
1-Methylnaphthalene	1.72E+02	c	1.80E+01	c	8.13E+02	c	6.06E+03	c	7.30E+01	c	4.47E-02	5.80E-03	-
2,4,5-Trichlorophenol	6.16E+03	n	6.30E+03	n	9.16E+04	n	2.69E+04	n	8.20E+04	n	3.31E+00	4.40E+00	-
2,4,6-Trichlorophenol	6.16E+01	n	4.90E+01	c**	9.16E+02	n	2.69E+02	n	2.10E+02	c**	3.37E-02	1.50E-02	-
2,4-Dichlorophenol	1.85E+02	n	1.90E+02	n	2.75E+03	n	8.07E+02	n	2.50E+03	n	4.13E-02	5.40E-02	-
2,4-Dimethylphenol	1.23E+03	n	1.30E+03	n	1.83E+04	n	5.38E+03	n	1.60E+04	n	3.22E-01	4.20E-01	-
2,4-Dinitrophenol	1.23E+02	n	1.30E+02	n	1.83E+03	n	5.38E+02	n	1.60E+03	n	3.34E-02	4.40E-02	-
2,4-Dinitrotoluene	1.71E+01	c	1.70E+00	c*	8.23E+01	c	5.36E+02	n	7.40E+00	c	2.46E-03	3.20E-04	-
2,6-Dinitrotoluene	3.56E+00	c	3.60E-01	c*	1.72E+01	c	8.09E+01	n	1.50E+00	c	5.12E-04	6.70E-05	-
2-Chloronaphthalene	6.26E+03	n	4.80E+03	n	1.04E+05	n	2.83E+04	n	6.00E+04	n	2.85E+00	3.80E+00	-
2-Chlorophenol	3.91E+02	n	3.90E+02	n	6.49E+03	n	1.77E+03	n	5.80E+03	n	5.76E-02	7.40E-02	-
2-Methylnaphthalene	2.32E+02	n	2.40E+02	n	3.37E+03	n	1.00E+03	n	3.00E+03	n	1.38E-01	1.90E-01	-
2-Methylphenol (cresol,o-)	-	-	3.20E+03	n	-	-	-	-	4.10E+04	n	-	7.50E-01	-
2-Nitroaniline	-	-	6.30E+02	n	-	-	-	-	8.00E+03	n	-	8.00E-02	-
2-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	1.18E+01	c	1.20E+00	c	5.70E+01	c	4.10E+02	c	5.10E+00	c	6.21E-03	8.10E-04	-
3+4-Methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
3-Nitroaniline	-	-	-	-	-	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	4.93E+00	n	-	-	7.33E+01	n	2.15E+01	n	-	-	1.99E-03	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Chloroaniline	-	-	2.70E+00	c*	-	-	-	-	1.10E+01	c	-	1.60E-04	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Nitroaniline	-	-	2.70E+01	c**	-	-	-	-	1.10E+02	c*	-	1.60E-03	-
4-Nitrophenol	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	3.48E+03	n	3.60E+03	n	5.05E+04	n	1.51E+04	n	4.50E+04	n	1.54E-03	5.50E+00	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Aniline	-	-	9.50E+01	c**	-	-	-	-	4.00E+02	c*	-	4.60E-03	-
Anthracene	1.74E+04	n	1.80E+04	n	2.53E+05	nl	7.53E+04	n	2.30E+05	nm	4.25E+01	5.80E+01	-

Table 5
Soil Screening Levels
Western Refining Southwest, Inc. - 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	EPA MCL- GW_ based SSL_ SoilGW
Azobenzene	-	-	5.60E+00	c	-	-	-	-	2.60E+01	c	-	9.20E+04	-
Benz(a)anthracene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	3.18E-02	4.30E-03	-
Benz(a)pyrene	1.12E+00	c	1.60E-02	c	2.36E+01	c	1.06E+02	c	2.90E-01	c	1.76E-01	4.00E-03	2.40E-01
Benz(b)fluoranthene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	3.09E-01	4.10E-02	-
Benz(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz(k)fluoranthene	1.53E+01	c	1.60E+00	c	3.23E+02	c	2.31E+03	c	2.90E+01	c	3.02E+00	4.00E-01	-
Benzoic acid	-	-	2.50E+05	nm	-	-	-	-	3.30E+06	nm	-	1.80E+01	-
Benzyl alcohol	-	-	6.30E+03	n	-	-	-	-	8.20E+04	nm	-	4.80E-01	-
Bis(2-chloroethoxy)methane	-	-	1.90E+02	n	-	-	-	-	2.50E+03	n	-	1.30E-02	-
Bis(2-chloroethyl)ether	3.10E+00	c	2.30E-01	c	1.56E+01	c	1.93E+00	c	1.00E+00	c	3.03E-05	3.60E-06	-
Bis(2-chloroisopropyl)ether	9.93E+01	c	-	-	5.19E+02	c	3.54E+03	c	-	-	2.38E-03	-	-
Bis(2-ethylhexyl)phthalate	3.80E+02	c	3.90E+01	c*	1.83E+03	c	5.38E+03	n	1.60E+02	c	1.08E+00	1.30E+00	1.40E+00
Butyl benzyl phthalate	-	-	2.90E+02	c*	-	-	-	-	1.20E+03	c	-	2.30E-01	-
Carbazole	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	1.53E+02	c	1.60E+01	c	3.23E+03	c	2.31E+04	c	2.90E+02	c	9.30E+00	1.20E+00	-
Dibenz(a,h)anthracene	1.53E-01	c	1.60E-02	c	3.23E+00	c	2.40E+01	c	2.90E-01	c	9.84E-02	1.30E-02	-
Dibenzofuran	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl phthalate	4.93E+04	n	5.10E+04	n	7.33E+05	n	2.15E+05	n	6.60E+05	nm	4.89E+00	6.10E+00	-
Dimethyl phthalate	6.16E+04	n	-	-	9.16E+05	n	2.69E+05	n	-	-	1.78E-01	-	-
Di-n-butyl phthalate	6.16E+03	n	-	-	9.16E+04	n	2.69E+04	n	-	-	1.69E+00	-	-
Di-n-octyl phthalate	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	2.32E+03	n	2.40E+03	n	3.37E+04	n	1.00E+04	n	3.00E+04	n	6.69E+01	8.90E+01	-
Fluorene	2.32E+03	n	2.40E+03	n	3.37E+04	n	1.00E+04	n	3.00E+04	n	4.00E+00	5.40E+00	-
Hexachlorobenzene	3.33E+00	c	2.10E-01	c	1.60E+01	c	1.17E+02	c	9.60E-01	c	9.47E-03	1.20E-04	1.30E-02
Hexachlorobutadiene	6.16E+01	n	1.20E+00	c*	5.17E+01	c	2.69E+02	n	5.30E+00	c	2.07E-03	2.60E-04	-
Hexachlorocyclopentadiene	2.28E+00	n	1.80E+00	n	5.49E+03	n	8.67E+02	n	7.50E+00	n	1.20E-01	1.30E-03	1.60E-01
Hexachloroethane	4.31E+01	n	1.80E+00	c*	6.41E+02	n	1.88E+02	n	8.00E+00	c*	1.60E-03	2.00E-04	-
Indeno(1,2,3-cd)pyrene	1.53E+00	c	1.60E-01	c	3.23E+01	c	2.40E+02	c	2.90E+00	c	1.00E+00	1.30E-01	-
Isophorone	5.61E+03	c	-	-	2.70E+04	c	5.37E+04	n	-	-	2.12E-01	-	-
Naphthalene	1.16E+03	n	3.80E+00	c*	1.68E+04	n	5.02E+03	n	1.70E+01	c*	4.11E-03	5.40E-04	-
Nitrobenzene	5.99E+01	c	5.10E+00	c*	2.91E+02	c	3.51E+02	n	2.20E+01	c*	7.20E-04	9.20E-05	-
N-Nitrosodi-n-propylamine	-	-	7.80E-02	c	-	-	-	-	3.30E-01	c	-	8.10E-06	-
N-Nitrosodiphenylamine	1.09E+03	c	1.10E+02	c	5.24E+03	c	3.79E+04	c	4.70E+02	c	5.02E-01	6.60E-02	-
Pentachlorophenol	9.85E+00	c	1.00E+00	c	4.45E+01	c	3.46E+02	c	4.00E+00	c	7.61E-03	4.00E-04	1.00E-02
Phenanthrene	1.74E+03	n	-	-	2.53E+04	n	7.53E+03	n	-	-	4.30E+00	-	-
Phenol	1.85E+04	n	1.90E+04	n	2.75E+05	n	7.74E+04	n	2.50E+05	nm	2.62E+00	3.30E+00	-
Pyrene	1.74E+03	n	1.80E+03	n	2.53E+04	n	7.53E+03	n	2.30E+04	n	9.59E+00	1.30E+01	-
Pyridine	-	-	7.80E+01	n	-	-	-	-	1.20E+03	n	-	6.80E-03	-
Total Petroleum Hydrocarbons (mg/kg)													

Table 5
Soil Screening Levels
Western Refining Southwest, Inc. - 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	EPA GW_MCL- based SSL_ SoilGW
Gasoline Range Organics (GRO)	1.00E+03	-	-	-	3.80E+03	-	-	-	-	-	-	-	-
Diesel Range Organics (DRO)	1.00E+03	-	-	-	3.80E+03	-	-	-	-	-	-	-	-
Motor Oil Range Organics (MRO)	1.00E+03	-	-	-	3.80E+03	-	-	-	-	-	-	-	-

- No screening level or analytical result available

NMED - New Mexico Environment Department Risk Assessment Guidance for Site Investigations and Remediation (March 2017)

EPA - Environmental Protection Agency Regional Screening Levels (June 2017)

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 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Metals (ug/l) TOTAL						
Antimony	-	7.26	n	7.80	n	6
Arsenic	100	0.86	c	0.05	c	10
Barium	-	3280	n	3800	n	2000
Beryllium	-	12.40	n	25	n	4
Cadmium	-	6.24	n	9.20	n	5
Chromium	50	5.70	c	22000	n	-
Cobalt	-	-	-	6.00	n	-
Cyanide	200	1.46	n		n	200
Iron		13800	n	14000	n	-
Lead	50	-	-	15	L	15
Manganese		2020	n	430	n	-
Mercury	2	0.63	n	0.63	n	2
Nickel	-	372	n	200	n	-
Selenium	50	98.7	n	100	n	50
Silver	50	81.2	n	94	n	-
Vanadium	-	63.1	n	86	n	-
Zinc	10000	5960	n	6000	n	-
Chloride	250000	-	-	-	-	-
Fluoride	1600	1180	n	800	n	
Sulfate	600000	-	-	-	-	-
Metals (ug/l) DISSOLVED						
Antimony (D)	-	7.26	n	7.80	n	6
Arsenic (D)	100	0.86	c	0.05	c	10
Barium (D)	1000	3280.00	n	3800	n	2000
Beryllium (D)	-	12.40	n	25	n	4
Cadmium (D)	10	6.24	n	9.20	n	5
Chromium (D)	50	5.70	c	22000	n	-
Cobalt (D)	50	-	-	6	n	-
Cyanide (D)	200	1.46	n	14000	n	200
Iron (D)	1000	13800.00	n	15	L	-
Lead (D)	50	-	-	430	n	15
Manganese (D)	200	2020.00	n	200	n	-
Nickel (D)	-	372	n	100	n	-
Selenium (D)	50	98.7	n	94	n	50
Silver (D)	50	81.2	n	86	n	-
Vanadium (D)	-	63.1	n	6000	n	-
Zinc (D)	10000	5960	n		n	-
Volatiles (ug/l)						
1,1,1,2-Tetrachloroethane	-	5.74	c	0.57	c	-
1,1,1-Trichloroethane	60	8003	n	8000	n	200
1,1,2,2-Tetrachloroethane	10	0.76	c	0.08	c	-
1,1,2-Trichloroethane	10	0.41	c	0.28	c**	5
1,1-Dichloroethane	25	27.5	c	2.80	c	-
1,1-Dichloroethene	5	284	n	280	n	7
1,1-Dichloropropene	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	-	7	n	-
1,2,3-Trichloropropane	-	0.01	c	0.0008	c	-
1,2,4-Trichlorobenzene (V)	-	3.98	c	1.20	c**	70
1,2,4-Trimethylbenzene	-	-	-	56	n	-
1,2-Dibromo-3-chloropropane	-	0.00	c	0.0003	c	0.2

Table 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
1,2-Dibromoethane (EDB)	0.1	0.07	c	0.01	c	0.05
1,2-Dichlorobenzene (V)	-	302	n	300	n	600
1,2-Dichloroethane (EDC)	10	1.71	c	0.17	c*	5
1,2-Dichloropropane	-	4.38	c	0.14	c*	5
1,3,5-Trimethylbenzene	-	-	-	60	n	-
1,3-Dichlorobenzene (V)	-	-	-	-	-	-
1,3-Dichloropropane	-	-	-	370	n	-
1,4-Dichlorobenzene (V)	-	4.82	c	0.48	c	75
1-Methylnaphthalene (V)	-	-	-	1.10	c	-
2,2-Dichloropropane	-	-	-	-	-	-
2-Butanone	-	5565	n	5600	n	-
2-Chlorotoluene	-	-	-	240	n	-
2-Hexanone	-	-	-	-	-	-
2-Methylnaphthalene (V)	-	-	-	36	n	-
4-Chlorotoluene	-	-	-	250	n	-
4-Isopropyltoluene	-	-	-	-	-	-
4-Methyl-2-pentanone	-	-	-	-	-	-
Acetone	-	14100	n	14000	n	-
Benzene	10	4.55	c	0.46	c*	5
Bromobenzene	-	-	-	62	n	-
Bromodichloromethane	-	1.34	c	0.13	c	-
Bromoform	-	-	-	3.30	c*	-
Bromomethane	-	7.54	n	7.50	n	-
Carbon disulfide	-	810	n	810	n	-
Carbon Tetrachloride	10	4.55	c	0.46	c	5
Chlorobenzene	-	77.6	n	78.00	n	100
Chloroethane	-	20857	-	-	-	-
Chloroform	100	2.29	c	0.22	c	-
Chloromethane	-	20.3	c	190.00	n	-
cis-1,2-DCE	-	36.5	n	36	n	70
cis-1,3-Dichloropropene	-	4.71	c	-	-	-
Dibromochloromethane	-	1.68	c	0.87	c	-
Dibromomethane	-	-	-	8.30	n	-
Dichlorodifluoromethane	-	197	n	200	n	-
Ethylbenzene	750	15.0	c	1.50	c	700
Hexachlorobutadiene (V)	-	1.39	c	0.14	c*	-
Isopropylbenzene	-	447	n	450	n	-
Methyl tert-butyl ether (MTBE)	-	143	c	14	c	-
Methylene Chloride	100	106	c	11	c**	5
Naphthalene (V)	-	1.65	c	0.17	c*	-
n-Butylbenzene	-	-	-	-	-	-
n-Propylbenzene	-	-	-	-	-	-
sec-Butylbenzene	-	-	-	-	-	-
Styrene	-	1205	n	1200	n	100
tert-Butylbenzene	-	-	-	-	-	-
Tetrachloroethene (PCE)	20	40.3	c	11	c**	5
Toluene	750	1093.2	n	1100	n	1000
trans-1,2-DCE	-	93.2	n	360	n	100
trans-1,3-Dichloropropene	-	4.71	c	0.47	c*	-
Trichloroethene (TCE)	100	2.59	c	0.49	c**	5
Trichlorofluoromethane	-	1137	n	5200	n	-

Table 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Vinyl chloride	1	0.32	c	0.02	c	2
Xylenes, Total	620	193	n	190	n	10000
Semivolatiles (ug/l)						
1,2,4-Trichlorobenzene	-	4.0	c	1.2	n	70
1,2-Dichlorobenzene	-	302	n	300	n	600
1,3-Dichlorobenzene	-	-	-	-	-	-
1,4-Dichlorobenzene	-	4.82	c	0.48	c	75
1-Methylnaphthalene	-	-	-	1.10	c	-
2,4,5-Trichlorophenol	-	1166	n	1200	n	-
2,4,6-Trichlorophenol	-	11.9	n	4.10	c**	-
2,4-Dichlorophenol	-	45.3	n	46	n	-
2,4-Dimethylphenol	-	353.9	n	360	n	-
2,4-Dinitrophenol	-	38.7	n	39	n	-
2,4-Dinitrotoluene	-	2.37	c	0.24	c	-
2,6-Dinitrotoluene	-	0.49	c	0.05	c	-
2-Chloronaphthalene	-	733	n	750	n	-
2-Chlorophenol	-	91.0	n	91	n	-
2-Methylnaphthalene	-	-	-	36	n	-
2-Methylphenol	-	-	-	930	n	-
2-Nitroaniline	-	-	-	190	n	-
2-Nitrophenol	-	-	-	-	-	-
3,3'-Dichlorobenzidine	-	1.25	c	0.13	c	-
3+4-Methylphenol	-	-	-	1400	n	-
3-Nitroaniline	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	-	1.52	n	-	-	-
4-Bromophenyl phenyl ether	-	-	-	-	-	-
4-Chloro-3-methylphenol	-	-	-	-	-	-
4-Chloroaniline	-	-	-	0.37	c	-
4-Chlorophenyl phenyl ether	-	-	-	-	-	-
4-Nitroaniline	-	-	-	3.80	c*	-
4-Nitrophenol	-	-	-	-	-	-
Acenaphthene	-	535	n	530	n	-
Acenaphthylene	-	-	-	-	-	-
Aniline	-	-	-	13	c*	-
Anthracene	-	1721	n	-	n	-
Azobenzene	-	-	-	0.12	c	-
Benz(a)anthracene	-	0.12	c	0.03	c	-
Benzo(a)pyrene	0.7	0.25	c	0.03	c	0.2
Benzo(b)fluoranthene	-	0.34	c	0.03	c	-
Benzo(g,h,i)perylene	-	-	-	-	-	-
Benzo(k)fluoranthene	-	3.43	c	2.50	c	-
Benzoic acid	-	-	-	75000	n	-
Benzyl alcohol	-	-	-	2000	n	-
Bis(2-chloroethoxy)methane	-	-	-	59	n	-
Bis(2-chloroethyl)ether	-	0.14	c	0.01	c	-
Bis(2-chloroisopropyl)ether	-	9.81	c	-	-	-
Bis(2-ethylhexyl)phthalate	-	55.6	c	5.60	c*	6
Butyl benzyl phthalate	-	-	-	16	c	-
Carbazole	-	-	-	-	-	-
Chrysene	-	34.3	c	25.00	c	-
Dibenz(a,h)anthracene	-	0.03	c	0.0250	c	-

Table 6
Groundwater Screening Levels
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	New Mexico WQCC Standards	NMED Tap Water	NMED TapW_key	EPA Screening Levels.Tap Water	EPA TapW_key	MCL
Dibenzofuran	-	-	-	-	-	-
Diethyl phthalate	-	14801	n	15000	n	-
Dimethyl phthalate	-	-	-	-	-	-
Di-n-butyl phthalate	-	885	n	-	-	-
Di-n-octyl phthalate	-	-	-	-	-	-
Fluoranthene	-	802	n	800	n	-
Fluorene	-	288	n	290	n	-
Hexachlorobenzene	-	0.10	c	0.01	c	1
Hexachlorobutadiene	-	1.39	c	0.14	c*	-
Hexachlorocyclopentadiene	-	0.41	n	0.41	n	50
Hexachloroethane	-	3.28	c	0.33	c**	-
Indeno(1,2,3-cd)pyrene	-	0.34	c	0.25	c	-
Isophorone	-	781	c	78.00	c	-
Naphthalene	-	1.65	c	0.17	c*	-
Nitrobenzene	-	1.40	n	0.14	c	-
N-Nitrosodimethylamine	-	0.0017	c	0.00011	c	-
N-Nitrosodi-n-propylamine	-	-	-	0.011	c	-
N-Nitrosodiphenylamine	-	0.0049	c	12.00	c	-
Phenanthrene	-	170	n	-	-	-
Pentachlorophenol	-	0.41	c	0.041	c	1
Phenol	-	5761	n	5800	n	-
Pyrene	-	117	n	120	n	-
Pyridine	-	-	-	20	n	-
TPH (mg/l)						
Gasoline Range Organics (GRO)	-	0.0398	-	-	-	-
Diesel Range Organics (DRO)	-	0.0398	-	-	-	-
Motor Oil Range Organics (MRO)	-	0.0398	-	-	-	-

- No screening level available

Bolded value represents applicable screening level for comparison to site concentrations

EPA - Regional Screening Levels (June 2017) -Tap Water

EPA - Regional Screening Levels (June 2017) - MCL

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

NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (March 2017)

Table 7
Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non- Residential Soil Screening Level	Source	NDD-4 (0-0.5)	NDD-4 (1.5-2)	NDD-4 (8-10)	NDD-4 (18-20)	NDD-5 (0-0.5)	NDD-5 (1.5-2)	NDD-6 (0-0.5)	NDD-6 (1.5-2)	NDD-6 (4-6)	NDD-6 (10-12)	NDD-7 (0-0.5)	NDD-7 (1.5-2)	NDD-8 (0-0.5)	NDD-8 (1.5-2)	NDD-9 (0-0.5)	NDD-9 (1.5-2)	NDD-10 (0-0.5)	NDD-10 (1.5-2)	NDD-11 (0-0.5)			
					1605B47-002	1605B47-003	1605B47-004	1605B47-005	1605999-021	1605999-022	1605B47-006	1605B47-007	1605B47-008	1605B47-009	1605999-015	1605999-016	1605999-017	1605999-018	1605999-019	1605999-020	1605999-011	1605999-012	1605B47-010			
					5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/19/2016	5/19/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/23/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/19/2016	5/23/2016				
Ethylbenzene	7.45E+01	(1)	3.65E+02	(4)	<0.0003	u	<0.0003	u	<0.0046	u	<0.0003	u	<0.052	n	0.083	v	<0.0003	u	<0.0003	u	<0.0002	u	<0.0003			
Hexachlorobutadiene	6.16E+01	(1)	5.17E+01	(4)	<0.0005	u	<0.0004	u	<0.0068	u	<0.0005	u	<0.078	u	<0.0052	u	<0.0005	u	<0.0004	u	<0.0004	u	<0.0005			
Isopropylbenzene	2.35E+03	(1)	2.71E+03	(5)	<0.0003	u	<0.0002	u	<0.0048	u	<0.0004	u	<0.055	u	0.046	v	<0.0002	u	<0.0002	u	<0.0002	u	<0.0005			
Methyl tert-butyl ether (MTBE)	9.68E+03	(1)	4.78E+03	(4)	<0.0003	u	<0.0003	u	<0.0176	u	<0.0004	u	<0.2	u	<0.013	u	<0.0003	u	<0.0003	u	<0.0003	u	<0.0003			
Methylene chloride	4.09E+02	(1)	1.20E+03	(5)	<0.002	u	<0.0019	u	<0.0161	u	<0.0022	u	<0.18	u	<0.012	u	<0.0019	u	<0.0016	u	<0.0018	u	<0.0021			
Naphthalene	1.16E+03	(5)	5.02E+03	(5)	<0.002	u	<0.0019	u	<0.0087	u	<0.0022	u	5.3	v	0.096	v	<0.0002	u	<0.0016	u	<0.0018	u	<0.0021			
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	<0.0005	u	<0.0005	u	<0.0049	u	<0.0005	u	0.64	J	0.09	J	<0.0005	u	<0.0004	u	<0.0004	u	<0.0005			
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	<0.0004	u	<0.0003	u	<0.0043	u	<0.0039	u	0.43	J	0.093	u	<0.0004	u	<0.0003	u	<0.0003	u	<0.0004			
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	<0.0004	u	<0.0003	u	<0.0077	u	<0.0004	u	0.33	J	0.036	J	<0.0004	u	<0.0003	u	<0.0003	u	<0.0004			
Styrene	7.23E+03	(1)	1.01E+04	(5)	<0.0003	u	<0.0002	u	<0.005	u	<0.0003	u	<0.057	u	<0.0038	u	<0.0003	u	<0.0002	u	<0.0003	u	<0.0004			
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	<0.0003	u	<0.0003	u	<0.0046	u	<0.0003	u	<0.053	u	<0.0035	u	<0.0003	u	<0.0002	u	<0.0003	u	<0.0003			
Tetrachloroethene (PCE)	1.10E+02	(1)	1.10E+02	(5)	<0.0003	u	<0.0003	u	<0.0046	u	<0.0003	u	<0.053	u	<0.0035	u	<0.0003	u	<0.0002	u	<0.0002	u	<0.0003			
Toluene	5.22E+03	(1)	1.40E+04	(5)	<0.0002	u	<0.0002	u	<0.0033	u	<0.003	u	0.25	J	0.014	J	<0.0005	u	<0.0008	u	<0.0002	u	<0.0007			
trans-1,2-DCE	2.93E+02	(1)	3.03E+02	(5)	<0.0002	u	<0.0002	u	<0.0156	u	<0.0042	u	<0.18	u	<0.012	u	<0.0002	u	<0.0002	u	<0.0002	u	<0.0002			
trans-1,3-Dichloropropene	2.91E+01	(1)	1.29E+02	(5)	<0.0002	u	<0.0002	u	<0.0082	u	<0.0074	u	<0.094	u	<0.0063	u	<0.0002	u	<0.0002	u	<0.0002	u	<0.0002			
Trichloroethene (TCE)	6.72E+00	(1)	6.84E+00	(5)	<0.002	u	<0.0019	u	<0.006	u	<0.0054	u	<0.069	u	<0.0046	u	<0.0019	u	<0.0016	u	<0.0018	u	<0.0021			
Trichlorofluoromethane	1.12E+03	(1)	1.12E+03	(5)	<0.0003	u	<0.0002	u	<0.0042	u	<0.0038	u	<0.048	u	<0.0032	u	<0.0002	u	<0.0002	u	<0.0002	u	<0.0003			
Vinyl chloride	7.41E-01	(1)	2.83E+01	(4)	<0.0005	u	<0.0005	u	<0.0046	u	<0.0042	u	<0.052	u	<0.0035	u	<0.0005	u	<0.0004	u	<0.0005	u	<0.0006			
Xylenes, Total	8.63E+02	(1)	7.91E+02	(5)	<0.0008	u	<0.0008	u	<0.0106	u	<0.0096	u	22	v	0.48	v	<0.0008	u	<0.0006	u	<0.0007	u	<0.0008			
Semi-volatiles (mg/kg)																										
1,2-Trichlorobenzene	8.22E+01	(1)	7.84E+01	(5)	<0.12	u	<0.13	u	<0.1279	u	<0.15	u	<6.4932	u	<0.13	u	<0.1385	u	<0.135	u	<0.1321	u	<0.12			
1,2-Dichlorobenzene	2.14E+03	(1)	2.47E+03	(5)	<0.086	u	<0.09	u	<0.0906	u	<0.1	u	<4.5974	u	<0.089	u	<0.0981	u	<0.0956	u	<0.0935	u	<0.081			
1,3-Dichlorobenzene	-	-	-	-	<0.087	u	<0.09	u	<0.0914	u	<0.11	u	<4.6393	u	<0.09	u	<0.099	u	<0.0964	u	<0.0944	u	<0.082			
1,4-Dichlorobenzene	1.29E+03	(1)	6.78E+03	(4)	<0.095	u	<0.099	u	<0.1	u	<10.4729	u	<0.11	u	<0.098	u	<0.1083	u	<0.1055	u	<0.1032	u	<0.09			
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(7)	<0.11	u	<0.12	u	<0.1188	u	<0.14	u	12	J	<6.0314	u	<0.1287	u	<0.1254	u	<0.1227	u	<0.11			
2,4,5-Trichlorophenol	6.16E+04	(1)	2.69E+04	(5)	<0.11	u	<0.12	u	<0.1184	u	<0.14	u	<6.0071	u	<0.12	u	<0.1282	u	<0.1249	u	<0.1222	u	<0.11			
2,4,6-Trichlorophenol	6.16E+01	(1)	2.69E+02	(5)	<0.093	u	<0.097	u	<0.0981	u	<0.11	u	<4.9799	u	<0.097	u	<0.1063	u	<0.1035	u	<0.1013	u	<0.088			
2,4-Dichlorophenol	1.85E+02	(1)	8.07E+02	(5)	<0.1	u	<0.11	u	<0.1103	u	<0.13	u	<5.5994	u	<0.11	u	<0.1247	u	<0.1164	u	<0.1139	u	<0.099			
2,4-Dimethylphenol	1.23E+03	(1)	5.38E+03	(5)	<0.12	u	<0.13	u	<0.1284	u	<0.15	u	<6.5184	u	<0.13	u	<0.1391	u	<0.1355	u	<0.1326	u	<0.12			
2,4-Dinitrophenol	1.23E+02	(1)	5.38E+02	(5)	<0.074	u	<0.078	u	<0.0784	u	<0.091	u	<3.9811	u	<0.077	u	<0.0849	u	<0.0827	u	<0.081	u	<0.071			
2,6-Dinitrotoluene	1.71E+01	(1)	8.23E+01	(4)	<0.1	u	<0.098	u	<0.1056	u	<0.12	u	<5.3604	u	<0.1	u	<0.1144									

Table 7
Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

		Residential Soil Screening Level	Source	Non- Residential Soil Screening Level	Source	NDD-4 (0-0.5')	NDD-4 (1.5-2')	NDD-4 (8-10')	NDD-4 (18-20')	NDD-5 (0-0.5')	NDD-5 (1.5-2')	NDD-6 (0-0.5')	NDD-6 (1.5-2')	NDD-6 (4-6')	NDD-6 (10-12')	NDD-7 (0-0.5')	NDD-7 (1.5-2')	NDD-8 (0-0.5')	NDD-8 (1.5-2')	NDD-9 (0-0.5')	NDD-9 (1.5-2')	NDD-10 (0-0.5')	NDD-10 (1.5-2')	NDD-11 (0-0.5')
						1605B47-002 5/23/2016	1605B47-003 5/23/2016	1605B47-004 5/23/2016	1605B47-005 5/23/2016	1605999-021 5/19/2016	1605999-022 5/19/2016	1605B47-006 5/23/2016	1605B47-007 5/23/2016	1605B47-008 5/23/2016	1605B47-009 5/23/2016	1605999-015 5/19/2016	1605999-016 5/19/2016	1605999-017 5/19/2016	1605999-018 5/19/2016	1605999-019 5/19/2016	1605999-020 5/19/2016	1605999-011 5/19/2016	1605999-012 5/19/2016	1605B47-010 5/23/2016
Carbazole	-		-	-		<0.076	u	<0.079	u	<0.079	u	<0.092	u	<4.0532	u	<0.0865	u	<0.0928	u	<0.0842	u	<0.0789	u	<0.072
Chrysene	1.53E+02	u		3.23E+03	(4)	<0.096	u	<0.1	u	<0.1007	u	<0.12	u	<5.111	u	<0.1139	u	<0.117	u	<0.1062	u	<0.0995	u	<0.091
Dibenz(a,h)anthracene	1.53E-01	u	(1)	3.22E+00	(4)	<0.091	u	<0.095	u	<0.0956	u	<0.11	u	<4.8534	u	<0.1036	u	<0.1111	u	<0.1009	u	<0.0945	u	<0.086
Dibenzofuran	-	u		-		<0.11	u	<0.12	u	<0.1189	u	<0.14	u	<6.0369	u	<0.1288	u	<0.1382	u	<0.1255	u	<0.1176	u	<0.11
Diethyl phthalate	4.93E+04	u	(1)	2.15E+05	(5)	<0.11	u	<0.12	u	<0.1199	u	<0.14	u	<6.0866	u	<0.1299	u	<0.1393	u	<0.1265	u	<0.1185	u	<0.11
Dimethyl phthalate	6.16E+04	u	(1)	2.69E+05	(5)	<0.11	u	<0.11	u	<0.1157	u	<0.13	u	<4.8714	u	<0.1253	u	<0.1344	u	<0.1194	u	<0.1117	u	<0.1
Di-n-butyl phthalate	6.16E+03	u	(1)	2.69E+04	(5)	<0.084	u	<0.087	u	<0.0884	u	<0.1	u	<4.4884	u	<0.0958	u	<0.1027	u	<0.0933	u	<0.0874	u	0.11
Di-n-octyl phthalate	-	u		-		<0.096	u	<0.1	u	<0.1009	u	<0.12	u	<5.1201	u	<0.1092	u	<0.1172	u	<0.1064	u	<0.0997	u	<0.091
Fluoranthene	2.32E+03	u	(1)	1.00E+04	(5)	<0.065	u	<0.067	u	<0.0681	u	<0.079	u	<3.4572	u	<0.0738	u	<0.0791	u	<0.0719	u	<0.0673	u	<0.061
Fluorene	2.32E+03	u	(1)	1.00E+04	(5)	<0.1	u	<0.11	u	<0.1082	u	<0.13	u	<5.4939	u	<0.1172	u	<0.1258	u	<0.1142	u	<0.107	u	<0.097
Hexachlorobenzene	3.33E+00	u	(1)	1.60E+01	(4)	<0.089	u	<0.092	u	<0.0932	u	<0.11	u	<4.7328	u	<0.101	u	<0.1083	u	<0.0984	u	<0.0922	u	<0.084
Hexachlorobutadiene	6.16E+01	u	(1)	5.17E+01	(4)	<0.13	u	<0.13	u	<0.1333	u	<0.15	u	<6.764	u	<0.1443	u	<0.1548	u	<0.1406	u	<0.1317	u	<0.12
Hexachlorocyclopentadiene	2.28E+00	u	(1)	8.67E+02	(5)	<0.13	u	<0.13	u	<0.1352	u	<0.16	u	<6.8624	u	<0.1464	u	<0.1571	u	<0.1396	u	<0.1336	u	<0.12
Hexachloroethane	4.31E+01	u	(1)	1.88E+02	(5)	<0.096	u	<0.1	u	<0.1016	u	<0.12	u	<5.1565	u	<0.11	u	<0.118	u	<0.1072	u	<0.1004	u	<0.091
Indeno(1,2,3-cd)pyrene	1.53E+00	u	(1)	3.23E+01	(4)	<0.088	u	<0.091	u	<0.0923	u	<0.11	u	<4.6872	u	<0.099	u	<0.1073	u	<0.0954	u	<0.0913	u	<0.083
Naphthalene	1.16E+03	u	(1)	5.02E+03	(5)	<0.11	u	<0.11	u	<0.1135	u	<0.13	u	<5.7621	u	<0.1229	u	<0.1319	u	<0.1198	u	<0.1122	u	<0.1
Nitrobenzene	5.99E+01	u	(1)	2.91E+02	(4)	<0.12	u	<0.12	u	<0.122	u	<0.14	u	<6.194	u	<0.1322	u	<0.1418	u	<0.1287	u	<0.126	u	<0.11
N-Nitrosod-n-propylamine	7.80E-01	u	(3)	3.30E+00	(7)	<0.11	u	<0.11	u	<0.1136	u	<0.13	u	<5.7684	u	<0.1231	u	<0.132	u	<0.1199	u	<0.1123	u	<0.1
N-Nitrosodiphenylamine	1.09E+03	u	(1)	5.24E+03	(4)	<0.11	u	<0.11	u	<0.1155	u	<0.13	u	<5.8614	u	<0.1251	u	<0.1342	u	<0.1218	u	<0.1141	u	<0.1
Pentachlorophenol	9.85E+00	u	(1)	4.45E+01	(4)	<0.072	u	<0.075	u	<0.076	u	<0.088	u	<3.8576	u	<0.0823	u	<0.0883	u	<0.0802	u	<0.0751	u	<0.068
Phenanthrene	1.74E+03	u	(1)	7.53E+03	(5)	<0.075	u	<0.079	u	<0.076	u	<0.093	u	<4.0774	u	<0.087	u	<0.0933	u	<0.0847	u	<0.0794	u	<0.072
Phenol	1.85E+04	u	(1)	7.74E+04	(5)	<0.083	u	<0.088	u	<0.0891	u	<0.1	u	<4.5207	u	<0.096	u	<0.1035	u	<0.094	u	<0.088	u	<0.08
Pyrene	1.74E+03	u	(1)	7.53E+03	(5)	<0.085	u	<0.088	u	<0.0894	u	<0.1	u	<4.5358	u	<0.0968	u	<0.1038	u	<0.0943	u	<0.0883	u	<0.08
Pyridine	7.80E+01	u	(2)	1.20E+03	(6)	<0.089	u	<0.093	u	<0.0937	u	<0.11	u	<4.7578	u	<0.1015	u	<0.1089	u	<0.0989	u	<0.0927	u	<0.084
Total Petroleum Hydrocarbons (mg/kg)																								
Gasoline Range Organics (GRO)	1.00E+03	u	(8)	3.80E+03	(5)	<0.7	u	<0.91	u	3.3	J	<0.9	u	660	v	<0.6128	u	0.64	J	1.1	J	0.76	J	<0.84
Diesel Range Organics (DRO)	1.00E+03	u	(8)	3.80E+03	(5)	<3.9	u	<3.9	u	330	v	27	v	5000	v	<4.6	u	<4.5	u	<4.4	u	<4	u	<3.5
Motor Oil Range Organics (MRO)	1.00E+03	u	(8)	3.80E+03	(5)	<54	u	<55	u	360	v	<68	u	<620	u	<64	u	<63	u	<62	u	<56	u	<49

Bold represents value above Residential Screening Level

yellow highlight represents value above Leachate non-residential Screening Level
Bold with yellow highlight value exceeds residential screening level and non-residential screen level

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

- No screening level or analytical result available

NMED - Risk Assessment Guidance for Site Investigations and Remediation
(March 2017)

EPA - Regional Screening Levels (June 2017)

(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) NMED Table 6-2 TPH Soil Screening Levels "unknown oil" - see report Section 5 for use of screening levels

Table 7
Soil Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non- Residential Soil Screening Level	Source	NDD-11 (1.5-2)	NDD-11 (12-14)	NDD-12 (0.0-5)	NDD-12 (1.5-2)	NDD-13 (0.0-5)	NDD-13 (1.5-2)	NDD-14 (0.0-5)	NDD-14 (1.5-2)	NDD-15 (0.0-5)	NDD-15 (1.5-2)	NDD-16 (0.0-5)	NDD-16 (1.5-2)	NDD-16 (14-16)	NDD-16 (22-24)	NDD-17 (0.0-5)	NDD-17 (1.5-2)	OW-54 (14-16)	OW-55 (16-18)	OW-55 (30-32)			
					1605B47-011 5/23/2016	1605B47-012 5/23/2016	1605999-013 5/19/2016	1605999-014 5/19/2016	1605999-009 5/19/2016	1605999-010 5/19/2016	1605999-007 5/19/2016	1605999-008 5/19/2016	1605999-005 5/19/2016	1605999-006 5/19/2016	1605C00-002 5/24/2016	1605C00-003 5/24/2016	1605C00-004 5/24/2016	1605C00-005 5/24/2016	1605C00-005 5/24/2016	1605999-004 5/19/2016	1605C77-001 5/25/2016	1605984-001 5/24/2016	1605984-002 5/24/2016			
Ethylbenzene	7.45E+01	(1)	3.65E+02	(4)	<0.003	J	<0.0002	<0.0003	<0.0004	<0.0002	<0.0003	<0.0002	<0.0003	<0.0002	<0.0003	<0.0003	<0.0002	<0.0003	<0.0004	<0.0003	0.5	3.8	0.013			
Hexachlorobutadiene	6.16E+01	(1)	5.17E+01	(4)	<0.005	<0.0004	<0.0004	<0.0005	<0.0004	<0.0004	<0.0005	<0.0004	<0.0005	<0.0004	<0.0005	<0.0005	<0.0004	<0.0004	<0.0006	<0.0006	<0.0029	<0.15	>0.0037			
Isopropylbenzene	2.35E+03	(1)	2.71E+03	(5)	<0.003	<0.0002	<0.0002	<0.0003	<0.0002	<0.0002	<0.0003	<0.0002	<0.0003	<0.0002	<0.0003	<0.0003	<0.0002	<0.0002	<0.0003	<0.0003	0.017	0.16	<0.0026			
Methyl tert-butyl ether (MTBE)	9.68E+02	(1)	4.78E+03	(4)	<0.003	<0.0003	<0.0003	<0.0004	<0.0003	<0.0003	<0.0003	<0.0003	<0.0004	<0.0003	<0.0003	<0.0003	<0.0005	<0.0004	<0.0004	<0.0004	0.07	<0.38	0.16			
Methylene chloride	4.09E+02	(1)	1.20E+03	(5)	<0.0021	<0.002	<0.0018	<0.0022	<0.002	<0.0017	<0.002	<0.0018	<0.0021	<0.0017	<0.002	<0.0021	<0.0017	<0.0019	<0.0025	<0.0025	<0.0067	<0.35	<0.0088			
Naphthalene	1.16E+03	(1)	5.02E+03	(5)	<0.0021	<0.002	<0.0018	<0.0022	<0.002	<0.0017	<0.002	<0.0018	<0.0021	<0.0017	<0.002	<0.0021	<0.0017	<0.0019	<0.0025	<0.0025	0.33	0.78	<0.0048			
n-Butylbenzene	3.90E+03	(2)	5.80E+04	(6)	<0.005	<0.0005	<0.0004	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.0005	<0.0004	<0.0005	<0.0004	<0.0003	<0.0003	<0.0006	<0.0006	0.2	1.2	<0.0048			
n-Propylbenzene	3.80E+03	(2)	2.40E+04	(6)	<0.004	<0.0003	<0.0003	<0.0004	<0.0004	<0.0003	<0.0004	<0.0003	<0.0004	<0.0003	<0.0004	<0.0004	<0.0003	<0.0003	<0.0005	<0.0005	0.11	0.2	<0.0024			
sec-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	<0.004	<0.0003	<0.0003	<0.0004	<0.0003	<0.0003	<0.0004	<0.0003	<0.0004	<0.0003	<0.0004	<0.0003	<0.0003	<0.0003	<0.0005	<0.0004	0.057	<0.17	<0.0042			
Styrene	7.23E+03	(1)	1.01E+04	(5)	<0.003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0021	<0.1	<0.0027			
tert-Butylbenzene	7.80E+03	(2)	1.20E+05	(6)	<0.003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0004	<0.0004	0.0019	<0.1	<0.0025			
Tetrachloroethene (PCE)	1.10E+02	(1)	1.10E+02	(5)	<0.003	<0.0003	<0.0002	<0.0003	<0.0003	<0.0002	<0.0003	<0.0002	<0.0003	<0.0002	<0.0003	<0.0003	<0.0002	<0.0003	<0.0003	<0.0003	0.11	0.2	<0.0027			
Toluene	5.22E+03	(1)	1.40E+04	(5)	0.0009	J	0.0056	J	0.0012	J	0.0011	J	0.0006	J	0.0008	J	0.0011	J	0.0014	J	0.67	14	0.019			
trans-1,2-DCE	2.93E+02	(1)	3.03E+02	(5)	<0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0065	<0.34	<0.0086			
trans-1,3-Dichloropropene	2.91E+01	(1)	1.29E+02	(5)	<0.003	<0.0002	<0.0002	<0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0002	<0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0019	<0.1	<0.0025				
Trichloroethene (TCE)	6.72E+00	(1)	6.84E+00	(5)	<0.0021	<0.002	<0.0018	<0.0022	<0.002	<0.0017	<0.002	<0.0018	<0.0021	<0.0017	<0.002	<0.0021	<0.0017	<0.0019	<0.0025	<0.0025	<0.0025	<0.13	<0.0033			
Trichlorofluoromethane	1.12E+03	(1)	1.12E+03	(5)	<0.003	<0.0002	<0.0002	<0.0003	<0.0002	<0.0002	<0.0003	<0.0002	<0.0003	<0.0002	<0.0003	<0.0003	<0.0002	<0.0002	<0.0003	<0.0003	<0.0017	<0.09	<0.0023			
Vinyl chloride	7.41E-01	(1)	2.83E+01	(4)	<0.005	<0.0005	<0.0005	<0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0006	<0.0004	<0.0005	<0.0005	<0.0004	<0.0005	<0.0007	<0.0007	<0.0019	<0.099	<0.0025			
Xylenes, Total	8.63E+02	(1)	7.91E+02	(5)	<0.008	0.0042	<0.0007	<0.0009	<0.0008	<0.0007	<0.0008	0.0008	<0.0008	<0.0007	<0.0008	<0.0008	<0.0007	<0.0008	<0.0011	<0.001	1.1	24	0.02			
Semi-volatiles (mg/kg)																										
1,2,4-Trichlorobenzene	8.22E+01	(1)	7.84E+01	(5)	<0.13	<0.13	<0.1273	<0.1173	<0.1433	<0.1441	<0.1445	<0.1355	<0.1339	<0.1298	<0.14	<0.14	<0.13	<0.1293	<0.1282	<0.1349	<0.1088	<0.13	<0.13			
1,2-Dichlorobenzene	2.14E+03	(1)	2.47E+03	(5)	<0.09	<0.089	<0.0901	<0.0831	<0.1015	<0.102	<0.1023	<0.0959	<0.0948	<0.0919	<0.099	<0.099	<0.091	<0.0915	<0.0908	<0.0955	<0.077	<0.093	<0.092			
1,3-Dichlorobenzene	-	-	-	-	<0.091	<0.09	<0.0909	<0.0838	<0.1024	<0.103	<0.1032	<0.0968	<0.0957	<0.0927	<0.1	<0.1	<0.092	<0.0924	<0.0916	<0.0964	<0.0777	<0.094	<0.093			
1,4-Dichlorobenzene	1.29E+03	(1)	6.73E+03	(4)	<0.1	<0.098	<0.0995	<0.0917	<0.112	<0.1126	<0.1129	<0.1059	<0.1047	<0.1014	<0.11	<0.11	<0.1	<0.101	<0.1002	<0.1054	<0.085	<0.1	<0.1			
1-Methylnaphthalene	1.72E+02	(1)	8.13E+02	(7)	<0.12	<0.12	<0.1182	<0.109	<0.1331	<0.1339	<0.1342	<0.1259	<0.1244	<0.1205	<0.13	<0.13	<0.12	<0.1201	<0.1191	<0.1253	<0.1011	<0.12	&			

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Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Residential Soil Screening Level	Source	Non- Residential Soil Screening Level	Source		NDD-11 (1.5-2)	NDD-11 (12-14)	NDD-12 (0.0-5)	NDD-12 (1.5-2)	NDD-13 (0.0-5)	NDD-13 (1.5-2)	NDD-14 (0.0-5)	NDD-14 (1.5-2)	NDD-15 (0.0-5)	NDD-15 (1.5-2)	NDD-16 (0.0-5)	NDD-16 (1.5-2)	NDD-16 (14-16)	NDD-16 (22-24)	NDD-17 (0.0-5)	NDD-17 (1.5-2)	OW-54 (14-16)	OW-55 (16-18)	OW-55 (30-32)						
						1605B47-011 5/23/2016	1605B47-012 5/23/2016	1605999-013 5/19/2016	1605999-014 5/19/2016	1605999-009 5/19/2016	1605999-010 5/19/2016	1605999-007 5/19/2016	1605999-008 5/19/2016	1605999-005 5/19/2016	1605999-006 5/19/2016	1605C00-002 5/24/2016	1605C00-003 5/24/2016	1605C00-004 5/24/2016	1605C00-005 5/24/2016	1605999-004 5/19/2016	1605C77-001 5/25/2016	1605B84-001 5/24/2016	1605B84-002 5/24/2016							
Carbazole	-	-	-	-	-	< 0.08	< 0.078	< 0.0794	< 0.0732	< 0.0895	< 0.09	< 0.0902	< 0.0846	< 0.0836	< 0.081	< 0.09	< 0.087	< 0.08	< 0.0807	< 0.087	< 0.0842	< 0.0679	< 0.082	< 0.081						
Chrysene	1.53E+02	(1)	3.23E+03	(4)	(1)	< 0.1	< 0.099	< 0.1002	< 0.0923	< 0.1128	< 0.1134	< 0.1137	< 0.1067	< 0.1054	< 0.1021	< 0.11	< 0.11	< 0.1	< 0.1018	< 0.0856	< 0.1	< 0.082	< 0.1							
Dibenz(a,h)anthracene	1.53E-01	(1)	3.23E+00	(4)	(1)	< 0.095	< 0.094	< 0.0951	< 0.0877	< 0.1071	< 0.1077	< 0.108	< 0.1013	< 0.1001	< 0.097	< 0.11	< 0.1	< 0.096	< 0.0966	< 0.0958	< 0.1008	< 0.0813	< 0.099	< 0.097						
Dibenzofuran	-	-	-	-	-	< 0.12	< 0.12	< 0.1183	< 0.1091	< 0.1332	< 0.134	< 0.1343	< 0.126	< 0.1245	< 0.1207	< 0.13	< 0.13	< 0.12	< 0.1202	< 0.1192	< 0.1254	< 0.1011	< 0.12	< 0.12						
Diethyl phthalate	4.93E+04	(1)	2.15E+05	(5)	(1)	< 0.12	< 0.12	< 0.1193	< 0.11	< 0.1343	< 0.1351	< 0.1354	< 0.127	< 0.1255	< 0.1216	< 0.13	< 0.13	< 0.12	< 0.1212	< 0.1202	< 0.1264	< 0.102	< 0.12	< 0.12						
Dimethyl phthalate	6.16E+04	(1)	2.69E+05	(5)	(1)	< 0.12	< 0.11	< 0.1151	< 0.1061	< 0.1296	< 0.1303	< 0.1306	< 0.1225	< 0.1211	< 0.1173	< 0.13	< 0.13	< 0.12	< 0.1169	< 0.1159	< 0.1219	< 0.0984	< 0.12	< 0.12						
Di-n-butyl phthalate	6.16E+03	(1)	2.69E+04	(5)	(1)	0.11	< 0.087	< 0.088	< 0.0811	< 0.0991	< 0.0996	< 0.0999	< 0.0937	< 0.0926	< 0.0897	0.11	0.12	0.12	J	< 0.0886	< 0.0932	< 0.0752	0.1	J	0.097					
Di-n-octyl phthalate	-	-	-	-	-	< 0.1	< 0.099	< 0.1004	< 0.0925	< 0.113	< 0.1136	< 0.1139	< 0.1068	< 0.1056	< 0.1023	< 0.11	< 0.11	< 0.1	< 0.1019	< 0.1011	< 0.1063	< 0.0752	< 0.1	< 0.1						
Fluoranthene	2.32E+03	(1)	1.00E+04	(5)	(1)	< 0.068	< 0.067	< 0.0678	< 0.0625	< 0.0763	< 0.0767	< 0.0769	< 0.0721	< 0.0713	< 0.0691	< 0.077	< 0.074	< 0.068	< 0.0688	< 0.0682	< 0.0718	< 0.0579	< 0.07	< 0.069						
Fluorene	2.32E+03	(1)	1.00E+04	(5)	(1)	< 0.11	< 0.11	< 0.1077	< 0.0993	< 0.1213	< 0.1219	< 0.1222	< 0.1146	< 0.1133	< 0.1098	< 0.12	< 0.12	< 0.11	< 0.1094	< 0.1085	< 0.1141	< 0.092	< 0.11	< 0.11						
Hexachlorobenzene	3.33E+00	(1)	1.60E+01	(4)	(1)	< 0.093	< 0.091	< 0.0928	< 0.0855	< 0.1045	< 0.1051	< 0.1053	< 0.0988	< 0.0976	< 0.0946	< 0.1	< 0.1	< 0.094	< 0.0942	< 0.0934	< 0.1141	< 0.092	< 0.11	< 0.11						
Hexachlorobutadiene	6.16E+01	(1)	5.17E+01	(4)	(1)	< 0.13	< 0.13	< 0.1326	< 0.1222	< 0.1493	< 0.1501	< 0.1505	< 0.1411	< 0.1395	< 0.1352	< 0.15	< 0.15	< 0.13	< 0.1347	< 0.1335	< 0.1405	< 0.1133	< 0.14	< 0.14						
Hexachlorocyclopentadiene	2.28E+00	(1)	6.17E+02	(5)	(1)	< 0.13	< 0.13	< 0.1345	< 0.124	< 0.1515	< 0.1523	< 0.1527	< 0.1432	< 0.1415	< 0.1372	< 0.15	< 0.15	< 0.14	< 0.1366	< 0.1355	< 0.1425	< 0.115	< 0.14	< 0.14						
Hexachloroethane	4.31E+01	(1)	1.88E+02	(5)	(1)	< 0.1	< 0.1	< 0.1011	< 0.0932	< 0.1138	< 0.1144	< 0.1147	< 0.1076	< 0.1063	< 0.1031	< 0.11	< 0.11	< 0.1	< 0.1027	< 0.1018	< 0.1071	< 0.0864	< 0.1	< 0.1						
Indeno(1,2,3-cd)pyrene	1.53E+00	(1)	1.32E+03	(4)	(1)	< 0.092	< 0.091	< 0.0919	< 0.0847	< 0.1035	< 0.104	< 0.1043	< 0.0978	< 0.0967	< 0.0937	< 0.1	< 0.1	< 0.093	< 0.0933	< 0.0925	< 0.0973	< 0.0785	< 0.095	< 0.094						
Naphthalene	1.16E+03	(5)	5.02E+03	(5)	(1)	< 0.11	< 0.11	< 0.1129	< 0.1041	< 0.1272	< 0.1279	< 0.1282	< 0.1202	< 0.1188	< 0.1152	< 0.13	< 0.12	< 0.11	< 0.1147	< 0.1137	< 0.1197	< 0.0965	0.25	< 0.12						
Nitrobenzene	5.99E+01	(1)	2.91E+02	(4)	(1)	< 0.12	< 0.12	< 0.1214	< 0.1119	< 0.1367	< 0.1375	< 0.1378	< 0.1293	< 0.1277	< 0.1238	< 0.14	< 0.13	< 0.12	< 0.1233	< 0.1223	< 0.1286	< 0.1038	< 0.13	< 0.12						
N-Nitrosod-n-propylamine	7.80E-01	(3)	3.30E+00	(7)	(1)	< 0.11	< 0.11	< 0.1131	< 0.1042	< 0.1273	< 0.128	< 0.1283	< 0.1204	< 0.119	< 0.1153	< 0.13	< 0.12	< 0.11	< 0.1149	< 0.1139	< 0.1198	< 0.0966	< 0.12	< 0.12						
N-Nitrosodiphenylamine	1.09E+03	(1)	5.24E+03	(4)	(1)	< 0.12	< 0.11	< 0.1149	< 0.1059	< 0.1294	< 0.1301	< 0.1304	< 0.1223	< 0.1209	< 0.1171	< 0.13	< 0.13	< 0.12	< 0.1167	< 0.1157	< 0.1217	< 0.0982	< 0.12	< 0.12						
Pentachlorophenol	9.85E+00	(1)	4.45E+01	(4)	(1)	< 0.076	< 0.075	< 0.0756	< 0.0697	< 0.0851	< 0.0858	< 0.0858	< 0.0805	< 0.0796	< 0.0771	< 0.085	< 0.083	< 0.076	< 0.0768	< 0.0762	< 0.0801	< 0.0646	< 0.078	< 0.077						
Phenanthrene	1.74E+03	(1)	7.58E+03	(5)	(1)	< 0.08	< 0.079	< 0.0799	< 0.0737	< 0.09	< 0.0905	< 0.0907	< 0.0851	< 0.0841	< 0.0815	< 0.09	< 0.088	< 0.081	< 0.0812	< 0.0805	< 0.0847	< 0.0683	< 0.083	< 0.082						
Phenol	1.85E+04	(1)	7.74E+04	(5)	(1)	< 0.089	< 0.087	< 0.0886	< 0.0817	< 0.0998	< 0.1003	< 0.1006	< 0.0943	< 0.0932	< 0.0903	< 0.1	< 0.097	< 0.089	< 0.09	< 0.0892	< 0.0939	< 0.0757	< 0.092	< 0.091						
Pyrene	1.74E+03	(1)	7.58E+03	(5)	(1)	< 0.089	< 0.088	< 0.0889	< 0.0819	< 0.1001	< 0.1007	< 0.1009	< 0.0946	< 0.0935	< 0.0907	< 0.1	< 0.097	< 0.09	< 0.0903	< 0.0895	< 0.0942	< 0.076	< 0.092	< 0.091						
Pyridine	7.80E+01	(2)	1.20E+03	(6)	(1)	< 0.093	< 0.092	< 0.0933	< 0.086	< 0.105	< 0.1056	< 0.1059	< 0.0993	< 0.0981	< 0.0951	< 0.11	< 0.1	< 0.094	< 0.0947	< 0.0939	< 0.0988	< 0.0797	< 0.097	< 0.095						
Total Petroleum Hydrocarbons (mg/kg)																														
Gasoline Range Organics (GRO)	1.00E+03	(8)	3.80E+03	(8)	(8)	< 0.78	< 0.78	0.73	J	0.76	J	0.71	J	0.65	J	< 0.8	u	< 0.64	u	< 0.75	0.73	J	0.78	J	21	v	280	v	3.4	v
Diesel Range Organics (DRO)	1.00E+03	(8)	3.80E+03	(6)	(8)	< 4.2	< 4.1	< 4.1	18	v	< 4.5	< 4.7	< 4.5	< 4.2	< 4.1	< 4.8	u	< 4.2	u	< 4.1	< 4.2	u	< 3.5	u	< 4.8	u	330	v	< 4.2	u
Motor Oil Range Organics (MRO)	1.00E+03	(8)	3.80E+03	(8)	(8)	< 58	< 57	< 57	< 52	u	< 63	< 65	< 63	< 59	< 58	< 67	u	< 58	u	< 57	< 58	u	< 48	u	< 48	u	3100	v	< 59	u

- No screening level or analytical result available
NMED - Risk Assessment Guidance for Site Investigations and Remediation
(March 2017)
EPA - Regional Screening Levels (June 2017)
(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) NMED Table 6-2 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 Leachate non-residential Screening Level

Bold with yellow highlight value exceeds residential screening level and non-residential screen level

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 8
Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	NDD-4-GW	NDD-6-GW	NDD-11-GW	NDD-16-GW	OW-14	OW-29	OW-30	OW-50	OW-52	OW-54	OW-54	OW-55	OW-55	OW-56	OW-56
Lab ID			1605C89-004	1605C89-001	1605C89-006	1605C89-008	1609076-001	1609076-002	1609076-004	1609504-004	1609504-003	1606136-002	1609A26-004	1606136-005	1609A26-001	1606136-001	1609A26-003
Sample Date			5/26/2016	5/26/2016	5/26/2016	5/26/2016	8/31/2016	8/31/2016	8/31/2016	9/9/2016	9/9/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016
Metals (ug/l) TOTAL																	
Antimony	6.00E+00	(2)	< 0.472	u	< 2.362	u	< 0.472	u	-	-	-	< 0.472	u	< 2.362	u	-	-
Arsenic	1.00E+01	(2)	Z	8.7	V	Z	9.4	J	< 2.112	u	< 2.112	v	9.3	J	10	Z	-
Barium	2.00E+03	(2)	Z	5400	Z	4800	Z	370	V	87	V	1400	V	3200	Z	1200	V
Beryllium	4.00E+00	(2)	Z	1.1	J	2.6	V	0.55	J	-	-	3.2	V	8	Z	-	-
Cadmium	5.00E+00	(2)	< 0.746	u	< 0.746	u	< 0.746	u	< 1.484	u	< 1.484	u	< 0.746	u	< 1.484	u	< 1.484
Chromium	5.00E+01	(3)	V	6.5	V	7.8	V	5	J	< 2.656	u	15	V	31	V	9	< 2.656
Cobalt	6.00E+00	(1)	V	15	V	8.6	V	26	-	-	-	110	V	46	V	-	-
Iron	1.38E+04	(4)	Z	6300	Z	14000	Z	3000	Z	680	Z	14000	Z	39000	Z	13000	Z
Lead	1.50E+01	(2)	Z	8.4	V	24	Z	7.9	V	0.87	V	32	Z	83	Z	24	1
Manganese	2.02E+03	(4)	Z	3200	Z	2700	Z	3200	Z	120	Z	2200	Z	6300	Z	5200	Z
Mercury	2.00E+00	(3)	0.24	V	0.061	J	< 0.053	u	-	0.096	J	< 0.053	u	< 0.053	u	0.11	J
Nickel	3.72E+02	(4)	300	Z	65	V	32	V	88	-	-	360	Z	460	Z	-	-
Selenium	5.00E+01	(3)	21	J	14	J	10	J	15	J	0.84	J	17	J	9	V	3.8
Silver	5.00E+01	(3)	< 2.751	u	< 2.751	u	< 2.751	u	< 1.548	u	< 1.548	u	< 2.751	u	< 1.548	u	< 1.548
Vanadium	6.31E+01	(4)	77	J	18	J	30	J	8.7	-	-	36	J	61	V	-	-
Zinc	1.00E+04	(3)	210	V	26	V	34	V	15	V	< 2.663	u	62	V	100	V	66
General Chemistry (ug/l) TOTAL																	
Chloride	2.50E+05	(3)	950000	V	560000	V	670000	V	-	31000	V	27000	V	360000	V	-	-
Fluoride	1.60E+03	(3)	550	V	1500	V	270	V	-	360	V	380	V	390	J	-	-
Sulfate	6.00E+05	(3)	110000	V	1100	V	400	J	42000	V	140000	V	86000	V	16000	V	-
Cyanide	2.00E+02	(3)	17.6	V	15.6	V	7.58	J	< 6	-	-	-	J	9.59	J	-	-
Metals (ug/l) DISSOLVED																	
Antimony (D)	6.00E+00	(2)	< 0.472	u	0.77	J	1	J	< 0.472	u	-	-	< 0.472	u	< 0.472	u	-
Arsenic (D)	1.00E+01	(2)	6.4	J	8.3	V	23	Z	7.1	J	8.6	V	2.6	J	3.1	J	2.3
Barium (D)	1.00E+03	(3)	83	V	5600	Z	3500	Z	270	V	100	V	68	V	140	V	55
Beryllium (D)	4.00E+00	(2)	< 0.313	u	0.44	J	< 0.313	u	< 0.746	u	-	-	-	J	-	-	-
Cadmium (D)	5.00E+00	(2)	< 0.746	u	< 0.746	u	< 0.746	u	< 0.746	u	< 0.746	u	< 0.746	u	< 0.746	u	< 0.746
Chromium (D)	5.00E+01	(3)	< 1.754	u	< 1.754	u	< 1.754	u	< 1.754	u	< 1.754	u	< 1.754	u	< 1.754	u	< 1.754
Cobalt (D)	5.00E+01	(3)	8.7	V	13	V	2.2	J	24	V	-	-	-	34	V	-	-
Cyanide (D)	2.00E+02	(3)	-	-	-	-	-	-	-	-	-	8.05	J	16.1	V	-	-
Iron (D)	1.00E+03	(3)	44	V	260	V	5600	Z	43	V	71	V	230	V	3700	Z	-
Lead (D)	1.50E+01	(2)	0.4	J	<0.00013	V	<0.00013	J	2.1	V	0.19	J	5.2	V	0.73	V	0.22
Manganese (D)	2.00E+02	(3)	18	V	3000	Z	1900	Z	2900	Z	38	V	1300	Z	4800	Z	4100
Nickel (D)	3.72E+02	(4)	190	Z	60	V	23	V	86	V	-	-	-	Z	430	Z	-
Selenium (D)	5.00E+01	(3)	16	V	11	V	6	J	15	V	12	J	6.8	J	9.1	V	8.2
Silver (D)	5.00E+01	(3)	< 2.751	u	< 2.751	u	< 2.751	u	< 2.751	u	< 2.751	u	< 2.751	u	< 2.751	u	< 2.751
Vanadium (D)	6.31E+01	(4)	4.1	J	4.2	J	3.1	J	4.8	J	-	-	-	J	7.2	J	-
Zinc (D)	1.00E+04	(3)	< 2.783	u	6.9	J	6.6	J	23	V	44	V	3.5	J	19	V	3.5
Volatiles (ug/l)																	
1,1,1,2-Tetrachloroethane	5.74E+00	(4)	< 0.223	u	< 11.146	u	< 0.223	u	< 0.557	u	< 0.111	u	< 0.557	u	< 1.115	u	< 0.111
1,1,1-Trichloroethane	6.00E+01	(3)	< 0.183	u	< 9.15	u	< 0.183	u	< 0.457	u	< 0.091	u	< 0.457	u	< 0.915	u	< 0.091
1,1,2,2-Tetrachloroethane	1.00E+01	(3)	< 0.256	u	< 12.823	u	< 0.256	u	< 0.641	u	< 0.128	u	< 0.641	u	< 1.282	u	< 0.128
1,1,2-Trichloroethane	5.00E+00	(2)	< 0.255	u	< 12.731	u	< 0.255	u	< 0.637	u	< 0.127	u	< 0.637	u	< 1.273	u	< 0.127

Table 8
Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	NDD-4-GW	NDD-6-GW	NDD-11-GW	NDD-16-GW	OW-14	OW-29	OW-30	OW-50	OW-52	OW-54	OW-54	OW-55	OW-55	OW-56	OW-56
Lab ID			1605C89-004	1605C89-001	1605C89-006	1605C89-008	1609076-001	1609076-002	1609076-004	1609504-004	1609504-003	1606136-002	1609A26-004	1606136-005	1609A26-001	1606136-001	1609A26-003
Sample Date			5/26/2016	5/26/2016	5/26/2016	5/26/2016	8/31/2016	8/31/2016	8/31/2016	9/9/2016	9/9/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016
1,1-Dichloroethane	2.50E+01	(3)	< 0.216	< 10.805	u	< 0.216	u	< 0.108	u	< 0.108	u	< 0.108	u	< 0.108	u	< 0.108	u
1,1-Dichloroethene	5.00E+00	(3)	< 0.214	< 10.722	u	< 0.214	u	< 0.107	u	< 0.107	u	< 0.107	u	< 0.107	u	< 0.107	u
1,1-Dichloropropene	-		< 0.266	< 13.312	u	< 0.266	u	< 0.133	u	< 0.133	u	< 0.133	u	< 0.133	u	< 0.133	u
1,2,3-Trichlorobenzene	7.00E+00	(1)	< 0.226	< 11.286	u	< 0.226	u	< 0.113	u	< 0.113	u	< 0.113	u	< 0.113	u	< 0.113	u
1,2,3-Trichloropropane	1.00E+02	(4)	< 0.404	u	< 20.2	< 0.404	u	< 0.202	u	< 0.202	u	< 0.202	u	< 4.04	u	< 0.202	u
1,2,4-Trichlorobenzene (V)	7.00E+01	(2)	< 0.266	u	< 13.277	< 0.266	u	< 0.133	u	< 0.133	u	< 0.133	u	< 2.655	u	< 0.133	u
1,2,4-Trimethylbenzene	5.60E+01	(1)	< 0.22	u	1500	2.7	v	< 0.11	u	< 0.11	u	36	v	1800	v	0.49	J
1,2-Dibromo-3-chloropropane	2.00E+01	(2)	< 0.469	< 23.433	u	< 0.469	u	< 0.234	u	< 0.234	u	< 0.234	u	< 4.687	u	< 0.234	u
1,2-Dibromoethane (EDB)	5.00E+02	(2)	< 0.224	< 11.177	u	< 0.224	u	< 0.112	u	< 0.112	u	< 0.112	u	< 2.235	u	< 0.112	u
1,2-Dichlorobenzene (V)	6.00E+02	(2)	< 0.8	u	< 40	u	< 0.8	u	< 0.4	u	< 0.4	u	< 2	u	< 4	u	< 2
1,2-Dichloroethane (EDC)	5.00E+00	(2)	< 0.23	< 11.502	u	< 0.23	u	< 0.575	u	0.5	J	0.49	J	< 0.575	u	5.6	J
1,2-Dichloropropane	5.00E+00	(2)	< 0.22	< 10.983	u	< 0.22	u	< 0.549	u	< 0.11	u	< 0.11	u	< 2.197	u	< 0.11	u
1,3,5-Trimethylbenzene	6.00E+01	(1)	< 0.231	u	200	< 0.231	v	< 0.115	u	< 0.115	u	11	v	700	v	280	v
1,3-Dichlorobenzene (V)	-		< 0.286	< 14.319	u	< 0.286	u	< 0.143	u	< 0.143	u	< 0.143	u	< 2.864	u	< 0.143	u
1,3-Dichloropropane	3.70E+02	(1)	< 0.311	< 15.572	u	< 0.311	u	< 0.156	u	< 0.156	u	< 0.156	u	< 3.114	u	< 0.156	u
1,4-Dichlorobenzene (V)	7.50E+01	(2)	< 0.285	< 14.266	u	< 0.285	u	< 0.143	u	< 0.143	u	< 0.143	u	< 2.853	u	< 0.143	u
1-Methylnaphthalene (V)	1.10E+01	(5)	0.55	J	130	0.87	J	0.26	J	< 0.204	u	< 0.204	u	78	J	30	J
2,2-Dichloropropane	-		< 0.333	< 16.664	u	< 0.333	u	< 0.167	u	< 0.167	u	< 0.167	u	< 3.333	u	< 0.167	u
2-Butanone	5.56E+03	(4)	< 1.474	< 73.699	u	< 1.474	u	< 0.737	u	< 0.737	u	< 0.737	u	< 14.74	u	< 0.737	u
2-Chlorotoluene	2.40E+02	(1)	< 0.8	u	< 40	u	< 0.8	u	< 0.4	u	< 0.4	u	< 2	u	< 4	u	< 2
2-Hexanone	-		< 1.68	u	< 83.987	u	< 1.68	u	< 0.84	u	< 0.84	u	< 4.199	u	< 8.399	u	< 4.199
2-Methylnaphthalene (V)	3.60E+01	(1)	0.71	J	160	0.77	J	< 0.158	u	< 0.158	u	2.9	J	120	v	45	v
4-Chlorotoluene	2.50E+02	(1)	< 0.256	< 12.814	u	< 0.256	u	< 0.128	u	< 0.128	u	< 0.128	u	< 2.563	u	< 0.128	u
4-Isopropyltoluene	-		< 0.281	< 14.061	u	< 0.281	u	< 0.141	u	< 0.141	u	0.47	J	11	J	0.37	J
4-Methyl-2-pentanone	-		< 0.855	< 42.764	u	< 0.855	u	< 0.428	u	< 0.428	u	< 0.428	u	< 8.553	u	< 0.428	u
Acetone	1.41E+04	(4)	13	J	< 490.874	19	J	< 4.909	u	< 4.909	u	21	v	< 98.175	u	< 49.087	u
Benzene	5.00E+00	(2)	< 0.191	u	5300	47	v	0.54	J	< 0.096	u	160	v	24000	v	12000	v
Bromobenzene	6.20E+01	(1)	< 0.195	u	< 9.771	< 0.195	u	< 0.098	u	< 0.098	u	< 0.098	u	< 1.954	u	< 0.098	u
Bromodichloromethane	1.34E+00	(4)	< 0.28	u	< 13.978	< 0.28	u	< 0.14	u	< 0.14	u	< 0.14	u	< 2.796	u	< 1.398	u
Bromoform	3.30E+01	(5)	< 0.204	u	< 10.213	< 0.204	u	< 0.102	u	< 0.102	u	< 0.102	u	< 2.043	u	< 1.021	u
Bromomethane	7.54E+00	(4)	< 1.56	u	< 77.989	< 1.56	u	< 0.78	u	< 0.78	u	< 0.78	u	< 15.598	u	< 7.799	u
Carbon disulfide	8.10E+02	(4)	< 1.195	< 59.749	u	< 1.195	u	< 0.597	u	< 0.597	u	< 0.597	u	< 11.95	u	< 5.975	u
Carbon Tetrachloride	5.00E+00	(2)	< 0.216	< 10.82	u	< 0.216	u	< 0.108	u	< 0.108	u	< 0.108	u	< 2.164	u	< 1.082	u
Chlorobenzene	1.00E+02	(2)	< 0.229	< 11.445	u	< 0.229	u	< 0.114	u	< 0.114	u	< 0.114	u	< 2.289	u	< 0.114	u
Chloroethane	2.09E+04	(4)	< 0.382	u	< 19.102	< 0.382	u	< 0.191	u	< 0.191	u	< 0.191	u	< 3.82	u	< 1.91	u
Chloroform	1.00E+02	(3)	< 0.178	u	< 8.877	< 0.178	u	< 0.089	u	< 0.089	u	< 0.089	u	< 1.775	u	< 0.888	u
Chloromethane	2.03E+01	(4)	< 0.426	u	< 21.281	< 0.426	u	< 0.213	u	< 0.213	u	< 0.213	u	< 4.256	u	< 2.128	u
cis-1,2-DCe	7.00E+01	(2)	< 0.248	u	< 12.416	< 0.248	u	< 0.124	u	< 0.124	u	< 0.124	u	< 2.483	u	< 1.242	u
cis-1,3-Dichloropropene	4.71E+00	(4)	< 0.213	u	< 10.653	< 0.213	u	< 0.107	u	< 0.107	u	< 0.107	u	< 2.131	u	< 1.065	u
Dibromochloromethane	1.68E+00	(4)	< 0.173	u	< 8.673	< 0.173	u	< 0.087	u	< 0.087	u	< 0.087	u	< 1.735	u	< 0.867	u
Dibromomethane	8.30E+00	(1)	< 0.238	u	< 11.914	< 0.238	u	< 0.119	u	< 0.119	u	< 0.119	u	< 2.383	u	< 1.191	u
Dichlorodifluoromethane	1.97E+02	(4)	< 0.715	u	< 35.732	< 0.715	u	< 0.357	u	< 0.357	u	< 0.357	u	< 7.146	u	< 3.573	u
Ethylbenzene	7.00E+02	(2)	< 0.224	u	370	67	v	< 0.112	u	< 0.112	u	55	v	2800	v	950	v
Hexachlorobutadiene (V)	1.39E+00	(4)	< 0.397	u	< 19.86	< 0.397	u	< 0.199	u	< 0.199	u	< 0.199	u	< 3.972	u	< 1.986	u

Table 8
Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	NDD-4-GW	NDD-6-GW	NDD-11-GW	NDD-16-GW	OW-14	OW-29	OW-30	OW-50	OW-52	OW-54	OW-54	OW-55	OW-55	OW-56	OW-56																			
Lab ID			1605C89-004	1605C89-001	1605C89-006	1605C89-008	1609076-001	1609076-002	1609076-004	1609504-004	1609504-003	1606136-002	1609A26-004	1606136-005	1609A26-001	1606136-001	1609A26-003																			
Sample Date			5/26/2016	5/26/2016	5/26/2016	5/26/2016	8/31/2016	8/31/2016	8/31/2016	9/9/2016	9/9/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016																			
Isopropylbenzene	4.47E+02	(4)	< 0.209	u	64	J	87	J	8.4	v	8.4	v	8.5	v	< 0.105	u	< 0.105	u	< 0.105	u	< 0.105	u	1.7	v	1.2	J	68	v	35	v	0.27	J	1.1	J		
Methyl tert-butyl ether (MTBE)	1.43E+02	(4)	71	v	160	v	180	v	75	v	75	v	580	v	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	2.4	v	2000	v	< 0.937	u	< 0.937	u	< 0.187	v	200	v	150	Z
Methylene Chloride	5.00E+00	(2)	< 0.375	u	< 18.742	u	< 18.742	u	< 0.375	u	< 0.375	u	< 0.937	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	< 0.187	u	< 3.748	u	< 1.874	u	< 0.187	u	< 0.937	u		
Naphthalene (V)	1.65E+00	(4)	0.22	J	280	v	390	v	0.4	J	0.4	J	18	v	< 0.093	u	< 0.093	u	< 0.093	u	< 0.093	u	< 0.093	u	5.7	v	4.2	J	370	v	120	v	< 0.093	u	< 0.463	u
n-Butylbenzene	-		< 0.321	u	36	J	57	J	1.1	J	1.1	J	1.3	J	< 0.16	u	< 0.16	u	< 0.16	u	< 0.16	u	< 0.16	u	1.6	J	< 0.802	u	75	v	17	J	< 0.16	u	< 0.802	u
n-Propylbenzene	-		< 0.264	u	120	v	250	v	8.4	v	8.4	v	11	v	< 0.132	u	< 0.132	u	< 0.132	u	< 0.132	u	< 0.132	u	7.4	v	3.7	J	340	v	120	v	< 0.132	u	< 0.661	u
sec-Butylbenzene	-		< 0.246	u	< 12.301	u	< 12.301	u	1.1	J	1.1	J	2.2	J	< 0.123	u	< 0.123	u	< 0.123	u	< 0.123	u	< 0.123	u	1.2	v	1.7	J	18	J	9.3	J	< 0.123	u	< 0.615	u
Styrene	1.00E+02	(2)	< 0.22	u	< 11	u	< 11	u	< 0.22	u	< 0.22	u	< 0.55	u	< 0.11	u	< 0.11	u	< 0.11	u	< 0.11	u	< 0.11	u	< 0.55	u	< 0.55	u	4.1	J	< 0.11	u	< 0.55	u	< 0.55	u
tert-Butylbenzene	-		< 0.23	u	< 11.501	u	< 11.501	u	< 0.23	u	< 0.23	u	< 0.575	u	< 0.115	u	< 0.115	u	< 0.115	u	< 0.115	u	< 0.115	u	0.12	J	< 0.575	u	< 2.3	u	< 0.115	u	< 0.575	u	< 0.575	u
Tetrachloroethene (PCE)	5.00E+00	(2)	< 0.304	u	< 15.202	u	< 15.202	u	< 0.304	u	< 0.304	u	< 0.76	u	< 0.152	u	< 0.152	u	< 0.152	u	< 0.152	u	< 0.152	u	< 0.152	u	< 0.76	u	< 3.04	u	< 1.52	u	< 0.152	u	< 0.76	u
Toluene	7.50E+02	(3)	< 0.236	u	130	v	330	v	0.34	J	0.34	J	2.9	J	< 0.118	u	< 0.118	u	< 0.118	u	< 0.118	u	< 0.118	u	200	v	8	v	34000	v	4600	v	0.44	J	0.92	J
trans-1,2-DCE	1.00E+02	(2)	< 0.8	u	< 40	u	< 40	u	< 0.8	u	< 0.8	u	< 2	u	< 0.4	u	< 0.4	u	< 0.4	u	< 0.4	u	< 0.4	u	< 0.4	u	< 2	u	< 8	u	< 4	u	< 0.4	u	< 2	u
trans-1,3-Dichloropropene	4.71E+00	(4)	< 0.207	u	< 10.327	u	< 10.327	u	< 0.207	u	< 0.207	u	< 0.516	u	< 0.103	u	< 0.103	u	< 0.103	u	< 0.103	u	< 0.103	u	< 0.103	u	< 0.516	u	< 2.065	u	< 1.033	u	< 0.103	u	< 0.516	u
Trichloroethene (TCE)	5.00E+00	(2)	< 0.35	u	< 17.509	u	< 17.509	u	< 0.35	u	< 0.35	u	< 0.875	u	< 0.175	u	< 0.175	u	< 0.175	u	< 0.175	u	< 0.175	u	< 0.175	u	< 0.875	u	< 3.502	u	< 1.751	u	< 0.175	u	< 0.875	u
Trichlorofluoromethane	1.14E+03	(4)	< 0.409	u	< 20.437	u	< 20.437	u	< 0.409	u	< 0.409	u	< 1.022	u	< 0.204	u	< 0.204	u	< 0.204	u	< 0.204	u	< 0.204	u	< 0.204	u	< 1.022	u	< 4.087	u	< 2.044	u	< 0.204	u	< 1.022	u
Vinyl chloride	1.00E+00	(3)	< 0.391	u	< 19.538	u	< 19.538	u	< 0.391	u	< 0.391	u	< 0.977	u	< 0.195	u	< 0.195	u	< 0.195	u	< 0.195	u	< 0.195	u	< 0.195	u	< 0.977	u	< 3.908	u	< 1.954	u	< 0.195	u	< 0.977	u
Xylenes, Total	6.20E+02	(3)	< 0.734	u	2100	v	5700	v	< 0.734	u	< 0.734	u	8	v	< 0.367	u	< 0.367	u	< 0.367	u	< 0.367	u	< 0.367	u	170	v	28	v	16000	v	4500	v	1.4	J	< 1.835	u
Semivolatiles (ug/l)																																				
1,2,4-Trichlorobenzene	7.00E+01	(2)	< 2.62	u	< 2.62	u	< 2.62	u	< 2.62	u	< 2.62	u	-	-	-	-	-	< 2.62	u	-	-	< 2.62	u	-	< 2.62	u	< 2.62	u	< 2.62	u	< 2.62	u	-	-		
1,2-Dichlorobenzene	6.00E+02	(2)	< 2.285	u	< 2.285	u	< 2.285	u	< 2.285	u	< 2.285	u	-	-	-	-	-	< 2.285	u	-	-	< 2.285	u	-	< 2.285	u	< 2.285	u	< 2.285	u	< 2.285	u	-	-		
1,3-Dichlorobenzene	-		< 2.257	u	< 2.257	u	< 2.257	u	< 2.257	u	< 2.257	u	-	-	-	-	-	< 2.257	u	-	-	< 2.257	u	-	< 2.257	u	< 2.257	u	< 2.257	u	< 2.257	u	-	-		
1,4-Dichlorobenzene	7.50E+01	(2)	< 2.388	u	< 2.388	u	< 2.388	u	< 2.388	u	< 2.388	u	-	-	-	-	-	< 2.388	u	-	-	< 2.388	u	-	< 2.388	u	< 2.388	u	< 2.388	u	< 2.388	u	-	-		
1-Methylnaphthalene	1.10E+01	(5)	< 2.918	u	110	v	110	v	< 2.918	u	< 2.918	u	-	-	-	-	-	< 2.918	u	-	-	< 2.918	u	-	< 2.918	u	< 2.918	u	< 2.918	u	< 2.918	u	-	-		
2,4,5-Trichlorophenol	1.17E+03	(4)	< 2.18	u	< 2.18	u	< 2.18	u	< 2.18	u	< 2.18	u	-	-	-	-	-	< 2.18	u	-	-	< 2.18	u	-	< 2.18	u	< 2.18	u	< 2.18	u	< 2.18	u	-	-		
2,4,6-Trichlorophenol	1.19E+01	(4)	< 2.446	u	< 2.44																															

Table 8
Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	NDD-4-GW	NDD-6-GW	NDD-11-GW	NDD-16-GW	OW-14	OW-29	OW-30	OW-50	OW-52	OW-54	OW-54	OW-55	OW-55	OW-56	OW-56
Lab ID			1605C89-004	1605C89-001	1605C89-006	1605C89-008	1609076-001	1609076-002	1609076-004	1609504-004	1609504-003	1606136-002	1609A26-004	1606136-005	1609A26-001	1606136-001	1609A26-003
Sample Date			5/26/2016	5/26/2016	5/26/2016	5/26/2016	8/31/2016	8/31/2016	8/31/2016	9/9/2016	9/9/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016
4-Nitroaniline	3.80E+01	(5)	< 2.559	u < 2.559	u < 2.559	u < 2.559	-	-	-	-	-	< 2.559	u	< 2.559	u	< 2.559	u
4-Nitrophenol	-		< 2.553	u < 2.553	u < 2.553	u < 2.553	-	-	-	-	-	< 2.553	u	< 2.553	u	< 2.553	u
Acenaphthene	5.35E+02	(4)	< 2.553	u < 2.553	u < 2.553	u < 2.553	-	-	-	-	-	< 2.553	u	< 2.553	u	< 2.553	u
Acenaphthylene	-		< 2.357	u < 2.357	u < 2.357	u < 2.357	-	-	-	-	-	< 2.357	u	< 2.357	u	< 2.357	u
Aniline	1.30E+02	(5)	< 2.441	u < 2.441	u < 2.441	u < 2.441	-	-	-	-	-	< 2.441	u	< 2.441	u	< 2.441	u
Anthracene	1.72E+03	(4)	< 2.486	u < 2.486	u < 2.486	u < 2.486	-	-	-	-	-	< 2.486	u	< 2.486	u	< 2.486	u
Azobenzene	1.20E+00	(5)	< 2.668	u < 2.668	u < 2.668	u < 2.668	-	-	-	-	-	< 2.668	u	< 2.668	u	< 2.668	u
Benz(a)anthracene	1.20E-01	(4)	< 2.639	u < 2.639	u < 2.639	u < 2.639	-	-	-	-	-	< 2.639	u	< 2.639	u	< 2.639	u
Benzo(a)pyrene	2.00E-01	(2)	< 2.718	u < 2.718	u < 2.718	u < 2.718	-	-	-	-	-	< 2.718	u	< 2.718	u	< 2.718	u
Benzo(b)fluoranthene	3.43E-01	(4)	< 2.88	u < 2.88	u < 2.88	u < 2.88	-	-	-	-	-	< 2.88	u	< 2.88	u	< 2.88	u
Benzo(g,h,i)perylene	-		< 2.643	u < 2.643	u < 2.643	u < 2.643	-	-	-	-	-	< 2.643	u	< 2.643	u	< 2.643	u
Benzo(k)fluoranthene	3.43E+00	(4)	< 2.998	u < 2.998	u < 2.998	u < 2.998	-	-	-	-	-	< 2.998	u	< 2.998	u	< 2.998	u
Benzoic acid	7.50E+04	(1)	< 2.606	u < 2.606	u < 2.606	u < 2.606	-	-	-	-	-	< 2.606	u	< 2.606	u	< 2.606	u
Benzyl alcohol	2.00E+03	(1)	< 3.012	u < 3.012	u < 3.012	u < 3.012	-	-	-	-	-	5.8	J	< 3.012	u	< 3.012	u
Bis(2-chloroethoxy)methane	5.90E+01	(1)	< 2.814	u < 2.814	u < 2.814	u < 2.814	-	-	-	-	-	< 2.814	u	< 2.814	u	< 2.814	u
Bis(2-chloroethyl)ether	1.40E-01	(4)	< 2.674	u < 2.674	u < 2.674	u < 2.674	-	-	-	-	-	< 2.674	u	< 2.674	u	< 2.674	u
Bis(2-chloroisopropyl)ether	9.81E+00	(4)	< 1.909	u < 1.909	u < 1.909	u < 1.909	-	-	-	-	-	< 1.909	u	< 1.909	u	< 1.909	u
Bis(2-ethylhexyl)phthalate	6.00E+00	(2)	< 2.616	u < 2.616	u < 2.616	u < 2.616	-	-	-	-	-	3.4	J	10	v	4.1	J
Butyl benzyl phthalate	1.60E+02	(5)	< 2.478	u < 2.478	u < 2.478	u < 2.478	-	-	-	-	-	< 2.478	u	< 2.478	u	< 2.478	u
Carbazole	-		< 2.287	u < 2.287	u < 2.287	u < 2.287	-	-	-	-	-	< 2.287	u	2.4	J	2.8	J
Chrysene	3.43E+01	(4)	< 2.779	u < 2.779	u < 2.779	u < 2.779	-	-	-	-	-	< 2.779	u	< 2.779	u	< 2.779	u
Dibenz(a,h)anthracene	3.43E-02	(4)	< 2.661	u < 2.661	u < 2.661	u < 2.661	-	-	-	-	-	< 2.661	u	< 2.661	u	< 2.661	u
Dibenzofuran	-		< 2.493	u < 2.493	u < 2.493	u < 2.493	-	-	-	-	-	< 2.493	u	< 2.493	u	< 2.493	u
Diethyl phthalate	1.48E+04	(4)	< 2.715	u < 2.715	u < 2.715	u < 2.715	-	-	-	-	-	< 2.715	u	< 2.715	u	< 2.715	u
Dimethyl phthalate	-		< 2.429	u < 2.429	u < 2.429	u < 2.429	-	-	-	-	-	< 2.429	u	< 2.429	u	< 2.429	u
Di-n-butyl phthalate	8.85E+02	(4)	< 2.444	u < 2.444	u < 2.444	u < 2.444	-	-	-	-	-	< 2.444	u	< 2.444	u	< 2.444	u
Di-n-octyl phthalate	-		5	J	6.2	J	-	-	-	-	-	5	J	4.9	J	4.9	J
Fluoranthene	8.02E+02	(4)	< 2.607	u < 2.607	u < 2.607	u < 2.607	-	-	-	-	-	< 2.607	u	< 2.607	u	< 2.607	u
Fluorene	2.88E+02	(4)	< 2.724	u < 2.724	u < 2.724	u < 2.724	-	-	-	-	-	< 2.724	u	< 2.724	u	< 2.724	u
Hexachlorobenzene	1.00E+00	(2)	< 2.633	u < 2.633	u < 2.633	u < 2.633	-	-	-	-	-	< 2.633	u	< 2.633	u	< 2.633	u
Hexachlorobutadiene	1.39E+00	(4)	< 2.184	u < 2.184	u < 2.184	u < 2.184	-	-	-	-	-	< 2.184	u	< 2.184	u	< 2.184	u
Hexachlorocyclopentadiene	5.00E+01	(2)	< 2.284	u < 2.284	u < 2.284	u < 2.284	-	-	-	-	-	< 2.284	u	< 2.284	u	< 2.284	u
Hexachloroethane	3.28E+00	(4)	< 2.368	u < 2.368	u < 2.368	u < 2.368	-	-	-	-	-	< 2.368	u	< 2.368	u	< 2.368	u
Indeno(1,2,3-cd)pyrene	3.43E-01	(4)	< 2.964	u < 2.964	u < 2.964	u < 2.964	-	-	-	-	-	< 2.964	u	< 2.964	u	< 2.964	u
Isophorone	7.81E+02	(4)	< 2.615	u < 2.615	u < 2.615	u < 2.615	-	-	-	-	-	< 2.615	u	< 2.615	u	< 2.615	u
Naphthalene	1.65E+00	(4)	< 2.598	u 200	v 280	u < 2.598	-	-	-	-	-	< 2.598	u	220	v	< 2.598	u
Nitrobenzene	1.40E+00	(4)	< 2.753	u < 2.753	u < 2.753	u < 2.753	-	-	-	-	-	< 2.753	u	< 2.753	u	< 2.753	u
N-Nitrosodimethylamine	1.70E-03	(4)	< 2.158	u < 2.158	u < 2.158	u < 2.158	-	-	-	-	-	< 2.158	u	< 2.158	u	< 2.158	u
N-Nitrosodi-n-propylamine	1.10E-01	(5)	< 2.389	u < 2.389	u < 2.389	u < 2.389	-	-	-	-	-	< 2.389	u	< 2.389	u	< 2.389	u
N-Nitrosodiphenylamine	4.90E-03	(4)	< 2.32	u < 2.32	u < 2.32	u < 2.32	-	-	-	-	-	< 2.32	u	< 2.32	u	< 2.32	u
Phenanthrene	1.70E+02	(4)	< 2.587	u < 2.587	u < 2.587	u < 2.587	-	-	-	-	-	< 2.587	u	< 2.587	u	< 2.587	u
Pentachlorophenol	1.00E+00	(2)	< 2.342	u < 2.342	u < 2.342	u < 2.342	-	-	-	-	-	< 2.342	u	< 2.342	u	< 2.342	u
Phenol	5.76E+03	(4)	< 1.985	u 11	v 14	u < 1.985	-	-	-	-	-	< 1.985	u	27	v	< 1.985	u
Pyrene	1.17E+02	(4)	< 3.094	u < 3.094	u < 3.094	u < 3.094	-	-	-	-	-	< 3.094	u	< 3.094	u	< 3.094	u

Table 8
Groundwater Analytical Results Summary
Western Refining Southwest, Inc. - Gallup Refinery
Gallup, New Mexico

	Screening Levels	Source	NDD-4-GW	NDD-6-GW	NDD-11-GW	NDD-16-GW	OW-14	OW-29	OW-30	OW-50	OW-52	OW-54	OW-54	OW-55	OW-55	OW-56	OW-56
Lab ID			1605C89-004	1605C89-001	1605C89-006	1605C89-008	1609076-001	1609076-002	1609076-004	1609504-004	1609504-003	1606136-002	1609A26-004	1606136-005	1609A26-001	1606136-001	1609A26-003
Sample Date			5/26/2016	5/26/2016	5/26/2016	5/26/2016	8/31/2016	8/31/2016	8/31/2016	9/9/2016	9/9/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016	6/1/2016	9/16/2016
Pyridine	2.00E+01	(1)	< 2.161	u	< 2.161	u	-	-	-	-	-	< 2.161	-	< 2.161	-	< 2.161	-
TPH (mg/l)																	
Gasoline Range Organics (GRO)	3.98E-02	(6)	0.11	27	53	0.54	31	6.7	6.9	< 0.015	< 0.015	4.8	3.2	210	76	0.49	1.2
Diesel Range Organics (DRO)	3.98E-02	(6)	< 0.69	4.3	7.3	< 0.69	4.1	< 0.69	< 0.69	< 0.69	< 0.69	2.3	1.6	7.2	5.3	1.4	0.77
Motor Oil Range Organics (MRO)	3.98E-02	(6)	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5

- No screening level or analytical result available

450 - bolded value exceeds screening level

(1) EPA - Regional Screening Levels (June 2017) - Tap Water

(2) EPA - Regional Screening Levels (June 2017) - MCL

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

(4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (March 2017)

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

(6) NMED groundwater screening level for unknown oil

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

Appendix A
North Drainage Ditch Analytical Reports
2009 and 2015



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

May 22, 2015

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0231
FAX (505) 722-0210

RE: North Drainage Ditch

OrderNo.: 1505702

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/15/2015 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505702

Date Reported: 5/22/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-3-GW

Project: North Drainage Ditch

Collection Date: 5/14/2015 8:30:00 AM

Lab ID: 1505702-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg
Gasoline Range Organics (GRO)	0.56	0.050		mg/L	1	5/20/2015 6:42:22 PM	R26322
Surr: BFB	86.6	70-130		%REC	1	5/20/2015 6:42:22 PM	R26322
EPA METHOD 8015D: DIESEL RANGE							Analyst: KJH
Diesel Range Organics (DRO)	1.1	1.0		mg/L	1	5/15/2015 8:38:14 PM	19246
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2015 8:38:14 PM	19246
Surr: DNOP	129	76.5-150		%REC	1	5/15/2015 8:38:14 PM	19246
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC
Acenaphthene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Acenaphthylene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Aniline	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Anthracene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Azobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benz(a)anthracene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzo(a)pyrene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzo(b)fluoranthene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzo(g,h,i)perylene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzo(k)fluoranthene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzoic acid	ND	20		µg/L	1	5/19/2015 6:03:06 PM	19289
Benzyl alcohol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Bis(2-chloroethyl)ether	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Bromophenyl phenyl ether	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Butyl benzyl phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Carbazole	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Chloro-3-methylphenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Chloroaniline	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Chloronaphthalene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Chlorophenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Chrysene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Di-n-butyl phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Di-n-octyl phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Dibenz(a,h)anthracene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Dibenzofuran	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
1,2-Dichlorobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
1,3-Dichlorobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289

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	Page 1 of 16
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	
	O RSD is greater than RSDlimit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505702

Date Reported: 5/22/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-3-GW

Project: North Drainage Ditch

Collection Date: 5/14/2015 8:30:00 AM

Lab ID: 1505702-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC
1,4-Dichlorobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
3,3'-Dichlorobenzidine	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Diethyl phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Dimethyl phthalate	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2,4-Dichlorophenol	ND	20		µg/L	1	5/19/2015 6:03:06 PM	19289
2,4-Dimethylphenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	5/19/2015 6:03:06 PM	19289
2,4-Dinitrophenol	ND	20		µg/L	1	5/19/2015 6:03:06 PM	19289
2,4-Dinitrotoluene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2,6-Dinitrotoluene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Fluoranthene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Fluorene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Hexachlorobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Hexachlorobutadiene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Hexachlorocyclopentadiene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Hexachloroethane	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Isophorone	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
1-Methylnaphthalene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Methylnaphthalene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Methylphenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
3+4-Methylphenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
N-Nitrosodimethylamine	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
N-Nitrosodiphenylamine	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Naphthalene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Nitroaniline	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
3-Nitroaniline	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Nitroaniline	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Nitrobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2-Nitrophenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
4-Nitrophenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Pentachlorophenol	ND	20		µg/L	1	5/19/2015 6:03:06 PM	19289
Phenanthrene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Phenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Pyrene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Pyridine	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
1,2,4-Trichlorobenzene	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
2,4,5-Trichlorophenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289

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
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505702

Date Reported: 5/22/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-3-GW

Project: North Drainage Ditch

Collection Date: 5/14/2015 8:30:00 AM

Lab ID: 1505702-001

Matrix: AQUEOUS

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC
2,4,6-Trichlorophenol	ND	10		µg/L	1	5/19/2015 6:03:06 PM	19289
Surr: 2-Fluorophenol	67.9	14.9-111		%REC	1	5/19/2015 6:03:06 PM	19289
Surr: Phenol-d5	77.2	11.3-108		%REC	1	5/19/2015 6:03:06 PM	19289
Surr: 2,4,6-Tribromophenol	81.2	15.7-154		%REC	1	5/19/2015 6:03:06 PM	19289
Surr: Nitrobenzene-d5	103	47.8-106		%REC	1	5/19/2015 6:03:06 PM	19289
Surr: 2-Fluorobiphenyl	105	21.3-123		%REC	1	5/19/2015 6:03:06 PM	19289
Surr: 4-Terphenyl-d14	101	14.3-135		%REC	1	5/19/2015 6:03:06 PM	19289
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Benzene	1.1	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Toluene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Ethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Methyl tert-butyl ether (MTBE)	260	10		µg/L	10	5/19/2015 1:54:07 PM	R26299
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2-Dichloroethane (EDC)	6.3	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Naphthalene	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1-Methylnaphthalene	ND	4.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
2-Methylnaphthalene	ND	4.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Acetone	ND	10		µg/L	1	5/19/2015 6:10:15 AM	R26263
Bromobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Bromodichloromethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Bromoform	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Bromomethane	ND	3.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
2-Butanone	ND	10		µg/L	1	5/19/2015 6:10:15 AM	R26263
Carbon disulfide	ND	10		µg/L	1	5/19/2015 6:10:15 AM	R26263
Carbon Tetrachloride	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Chlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Chloroethane	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Chloroform	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Chloromethane	ND	3.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
2-Chlorotoluene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
4-Chlorotoluene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
cis-1,2-DCE	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Dibromochloromethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Dibromomethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263

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
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Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1-Dichloroethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1-Dichloroethene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2-Dichloropropane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,3-Dichloropropane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
2,2-Dichloropropane	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Hexachlorobutadiene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
2-Hexanone	ND	10		µg/L	1	5/19/2015 6:10:15 AM	R26263
Isopropylbenzene	47	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
4-Isopropyltoluene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
4-Methyl-2-pentanone	ND	10		µg/L	1	5/19/2015 6:10:15 AM	R26263
Methylene Chloride	ND	3.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
n-Butylbenzene	ND	3.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
n-Propylbenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
sec-Butylbenzene	9.5	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Styrene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
tert-Butylbenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
trans-1,2-DCE	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Trichlorofluoromethane	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Vinyl chloride	ND	1.0		µg/L	1	5/19/2015 6:10:15 AM	R26263
Xylenes, Total	ND	1.5		µg/L	1	5/19/2015 6:10:15 AM	R26263
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	5/19/2015 6:10:15 AM	R26263
Surr: 4-Bromofluorobenzene	94.8	70-130		%REC	1	5/19/2015 6:10:15 AM	R26263
Surr: Dibromofluoromethane	108	70-130		%REC	1	5/19/2015 6:10:15 AM	R26263
Surr: Toluene-d8	101	70-130		%REC	1	5/19/2015 6:10:15 AM	R26263

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
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505702

Date Reported: 5/22/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1505702-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: GASOLINE RANGE							Analyst: cadg
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/20/2015 7:11:07 PM	R26322
Surr: BFB	99.7	70-130		%REC	1	5/20/2015 7:11:07 PM	R26322
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Benzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Toluene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Ethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Naphthalene	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1-Methylnaphthalene	ND	4.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
2-Methylnaphthalene	ND	4.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Acetone	ND	10		µg/L	1	5/19/2015 6:38:54 AM	R26263
Bromobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Bromodichloromethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Bromoform	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Bromomethane	ND	3.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
2-Butanone	ND	10		µg/L	1	5/19/2015 6:38:54 AM	R26263
Carbon disulfide	ND	10		µg/L	1	5/19/2015 6:38:54 AM	R26263
Carbon Tetrachloride	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Chlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Chloroethane	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Chloroform	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Chloromethane	ND	3.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
2-Chlorotoluene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
4-Chlorotoluene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
cis-1,2-DCE	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Dibromochloromethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Dibromomethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,3-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,4-Dichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Dichlorodifluoromethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1-Dichloroethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1-Dichloroethene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263

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
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1505702

Date Reported: 5/22/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1505702-002

Matrix: TRIP BLANK

Received Date: 5/15/2015 8:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
1,2-Dichloropropane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,3-Dichloropropane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
2,2-Dichloropropane	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Hexachlorobutadiene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
2-Hexanone	ND	10		µg/L	1	5/19/2015 6:38:54 AM	R26263
Isopropylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
4-Isopropyltoluene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
4-Methyl-2-pentanone	ND	10		µg/L	1	5/19/2015 6:38:54 AM	R26263
Methylene Chloride	ND	3.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
n-Butylbenzene	ND	3.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
n-Propylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
sec-Butylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Styrene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
tert-Butylbenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
trans-1,2-DCE	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1,1-Trichloroethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,1,2-Trichloroethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Trichloroethene (TCE)	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Trichlorofluoromethane	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
1,2,3-Trichloropropane	ND	2.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Vinyl chloride	ND	1.0		µg/L	1	5/19/2015 6:38:54 AM	R26263
Xylenes, Total	ND	1.5		µg/L	1	5/19/2015 6:38:54 AM	R26263
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	5/19/2015 6:38:54 AM	R26263
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	5/19/2015 6:38:54 AM	R26263
Surr: Dibromofluoromethane	106	70-130		%REC	1	5/19/2015 6:38:54 AM	R26263
Surr: Toluene-d8	97.3	70-130		%REC	1	5/19/2015 6:38:54 AM	R26263

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	Page 6 of 16
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	
	O	RSD is greater than RSDlimit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB-19246		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.4		1.000		137	76.5	150			

Sample ID	LCS-19246		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 19246		RunNo: 26216					
Prep Date:	5/15/2015		Analysis Date: 5/15/2015		SeqNo: 778434		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.8	1.0	5.000	0	117	60.1	156			
Surr: DNOP	0.62		0.5000		124	76.5	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup**Project:** North Drainage Ditch

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26263			RunNo: 26263					
Prep Date:		Analysis Date: 5/18/2015			SeqNo: 779854		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.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26263			RunNo: 26263					
Prep Date:		Analysis Date: 5/18/2015			SeqNo: 779854		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	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R26263			RunNo: 26263					
Prep Date:		Analysis Date: 5/18/2015			SeqNo: 779856		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	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
E Value above quantitation range	H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	100ng lcs		SampType: LCS			TestCode: EPA Method 8260B: VOLATILES				
Client ID:	LCSW		Batch ID: R26263			RunNo: 26263				
Prep Date:			Analysis Date: 5/18/2015			SeqNo: 779856		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	118	75.6	144			
Trichloroethene (TCE)	19	1.0	20.00	0	95.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26299			RunNo: 26299					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781268		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID 100ng lcs		SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW		Batch ID: R26299			RunNo: 26299					
Prep Date:		Analysis Date: 5/19/2015			SeqNo: 781270		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.7	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R26322			RunNo: 26322					
Prep Date:		Analysis Date: 5/20/2015			SeqNo: 782101		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup**Project:** North Drainage Ditch

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782103	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	mb-19289		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781333		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.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	mb-19289	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781333	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	150		200.0		76.8	14.9	111			
Surr: Phenol-d5	160		200.0		80.8	11.3	108			
Surr: 2,4,6-Tribromophenol	160		200.0		80.2	15.7	154			
Surr: Nitrobenzene-d5	76		100.0		76.1	47.8	106			
Surr: 2-Fluorobiphenyl	78		100.0		78.4	21.3	123			
Surr: 4-Terphenyl-d14	110		100.0		105	14.3	135			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	Ics-19289		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 19289		RunNo: 26300					
Prep Date:	5/19/2015		Analysis Date: 5/19/2015		SeqNo: 781334		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	47.8	99.7			
4-Chloro-3-methylphenol	160	10	200.0	0	79.9	58.1	103			
2-Chlorophenol	140	10	200.0	0	70.4	49.5	96.8			
1,4-Dichlorobenzene	73	10	100.0	0	72.6	40.4	89.4			
2,4-Dinitrotoluene	70	10	100.0	0	69.6	38.6	91.3			
N-Nitrosodi-n-propylamine	80	10	100.0	0	80.1	53.9	95.6			
4-Nitrophenol	140	10	200.0	0	71.9	26.4	108			
Pentachlorophenol	120	20	200.0	0	61.8	36.5	86.6			
Phenol	160	10	200.0	0	77.8	29.3	108			
Pyrene	74	10	100.0	0	73.9	45.7	100			
1,2,4-Trichlorobenzene	81	10	100.0	0	80.7	39.3	94.5			
Surr: 2-Fluorophenol	150		200.0		74.2	14.9	111			
Surr: Phenol-d5	170		200.0		83.5	11.3	108			
Surr: 2,4,6-Tribromophenol	170		200.0		86.1	15.7	154			
Surr: Nitrobenzene-d5	82		100.0		81.8	47.8	106			
Surr: 2-Fluorobiphenyl	86		100.0		86.4	21.3	123			
Surr: 4-Terphenyl-d14	79		100.0		78.7	14.3	135			

Sample ID	1505702-001Dms	SampType: MS			TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	NDD-3-GW	Batch ID: 19289			RunNo: 26300					
Prep Date:	5/19/2015	Analysis Date: 5/19/2015			SeqNo: 781339		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	80	10	100.0	0	80.4	46.4	121			
4-Chloro-3-methylphenol	170	10	200.0	0	85.8	45.3	135			
2-Chlorophenol	170	10	200.0	0	83.5	28.7	129			
1,4-Dichlorobenzene	81	10	100.0	0	80.8	42.6	104			
2,4-Dinitrotoluene	70	10	100.0	0	70.5	28.9	126			
N-Nitrosodi-n-propylamine	89	10	100.0	0	89.4	49.2	117			
4-Nitrophenol	130	10	200.0	0	62.8	18.1	97.2			
Pentachlorophenol	150	20	200.0	4.440	73.9	24.8	127			
Phenol	140	10	200.0	0	68.1	17.9	93.6			
Pyrene	79	10	100.0	0	79.4	29.6	142			
1,2,4-Trichlorobenzene	90	10	100.0	0	90.3	39.5	109			
Surr: 2-Fluorophenol	160		200.0		80.0	14.9	111			
Surr: Phenol-d5	150		200.0		73.7	11.3	108			
Surr: 2,4,6-Tribromophenol	190		200.0		96.1	15.7	154			
Surr: Nitrobenzene-d5	92		100.0		92.3	47.8	106			
Surr: 2-Fluorobiphenyl	94		100.0		93.6	21.3	123			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1505702-001Dms	SampType:	MS	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	NDD-3-GW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781339	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	89		100.0		89.2	14.3	135			

Sample ID	1505702-001Dmsd	SampType:	MSD	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	NDD-3-GW	Batch ID:	19289	RunNo:	26300					
Prep Date:	5/19/2015	Analysis Date:	5/19/2015	SeqNo:	781340	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	89	10	100.0	0	88.6	46.4	121	9.73	31.3	
4-Chloro-3-methylphenol	180	10	200.0	0	88.9	45.3	135	3.54	29	
2-Chlorophenol	180	10	200.0	0	90.5	28.7	129	8.09	28.4	
1,4-Dichlorobenzene	92	10	100.0	0	91.9	42.6	104	12.8	28.2	
2,4-Dinitrotoluene	72	10	100.0	0	71.5	28.9	126	1.49	22.9	
N-Nitrosodi-n-propylamine	99	10	100.0	0	99.5	49.2	117	10.7	28.8	
4-Nitrophenol	130	10	200.0	0	63.3	18.1	97.2	0.714	41.5	
Pentachlorophenol	170	20	200.0	4.440	83.1	24.8	127	11.4	45.1	
Phenol	130	10	200.0	0	66.3	17.9	93.6	2.80	33.9	
Pyrene	88	10	100.0	0	88.5	29.6	142	10.8	33.6	
1,2,4-Trichlorobenzene	96	10	100.0	0	95.8	39.5	109	5.95	28.2	
Surr: 2-Fluorophenol	160		200.0		78.3	14.9	111	0	0	
Surr: Phenol-d5	140		200.0		71.3	11.3	108	0	0	
Surr: 2,4,6-Tribromophenol	200		200.0		99.2	15.7	154	0	0	
Surr: Nitrobenzene-d5	95		100.0		95.1	47.8	106	0	0	
Surr: 2-Fluorobiphenyl	99		100.0		99.4	21.3	123	0	0	
Surr: 4-Terphenyl-d14	89		100.0		89.2	14.3	135	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1505702

22-May-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	5mL rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782177	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	10		10.00		102	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R26322	RunNo:	26322					
Prep Date:		Analysis Date:	5/20/2015	SeqNo:	782181	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	80.6	122			
Surr: BFB	9.8		10.00		97.7	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1505702**

RcptNo: 1

Received by/date:

[Signature]

05/15/15

Logged By: **Lindsay Mangin**

5/15/2015 8:55:00 AM

[Signature]

Completed By: **Lindsay Mangin**

5/15/2015 9:45:48 AM

[Signature]

Reviewed By:

[Signature]

05/19/15

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☐

No ☐

Not Present ☒

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Client

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of >0° C to 6.0°C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

(Note discrepancies on chain of custody)

Yes ☒

No ☐

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. 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:

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified:

[Signature]

Date:

[Signature]

By Whom:

[Signature]

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

[Signature]

Client Instructions:

[Signature]

17. Additional remarks: *Poured off for 8015DR20 analysis from a 1L Amber into a 250 ml Am*

CS 05/15/15

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance
with Rule 116 on back
side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Western Refining Southwest Inc.	Contact Gaurav Rajen	
Address I-40 Exit 39, Jamestown, NM 87347	Telephone No. 505-722-0227	
Facility Name Gallup Refinery	Facility Type Oil refinery	
Surface Owner Western Refining	Mineral Owner Western Refining	Lease No.

LOCATION OF RELEASE

Unit Letter	Section 23&33	Township 15N	Range 15W	Feet from the	North/South Line	Feet from the	East/West Line	County McKinley

Latitude 35°29'22" Longitude 108°25'24"

NATURE OF RELEASE

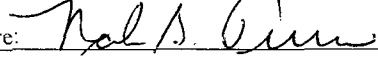
Type of Release Suspected historical release of hydrocarbons recently washed into a ditch by rainfall – based on smell of diesel, possible oil sheen on liquids	Volume of Release 30 barrels (1,200 gallons) estimated of oily water – the hydrocarbon content is much lesser	Volume Recovered 0 barrels
Source of Release It appears that a rain event may have picked up hydrocarbons absorbed onto surface/ subsurface soils from historical spills and collected in a ditch running east to west at the north-west end of the hill on which the refinery is located	Date and Hour of Occurrence Within past 10 - 15 days (approximately)	Date and Hour of Discovery 10/19/2009; 1:30 pm
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Carl J. Chavez, NMEMNRD, Oil Conservation Division; Hope Monzeglio, NMED Hazardous Waste Bureau (via telephone)	
By Whom? Gaurav Rajen	Date and Hour 10/20/2009 (approximately) 11:00 am	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. Not applicable	

If a Watercourse was Impacted, Describe Fully.* Not applicable

Describe Cause of Problem and Remedial Action Taken.* At approximately 1:30 pm on 10/19/2009, during a routine walk-through of arroyos and ditches in a field that lies immediately north of the hill on which the refinery is located, a ditch containing non-moving water was found to have some possible hydrocarbon staining – suspected from color of the water and smell of diesel.

Describe Area Affected and Cleanup Action Taken.* The affected area has a surface area less than approximately 150 square feet with some vertical penetration of the (possible) hydrocarbons to an as yet unknown depth. We plan to collect water and sludge samples, then pick up the water using a truck with a vacuum pump. We will then wait to see if the water reappears and is a continuous seep, or an occurrence caused by a rain event. In further cleanup actions, contaminated soils will be excavated, confirmatory environmental samples will be collected and analyzed, and all contaminated materials will be disposed off in accordance with applicable regulations.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Mark B. Turri	Approved by District Supervisor:	
Title: Refinery Manager – Gallup	Approval Date:	Expiration Date:
E-mail Address: mturri@wnr.com	Conditions of Approval:	Attached ☐
Date: 10-20-2009	Phone: 505-722-3833	

• Attach Additional Sheets If Necessary

Chavez, Carl J, EMNRD

From: Rajen, Gaurav [Gaurav.Rajen@wnr.com]
Sent: Thursday, October 22, 2009 1:18 PM
To: Monzeglio, Hope, NMENV
Cc: Riege, Ed; Turri, Mark; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Kieling, John, NMENV; Larsen, Thurman
Subject: RE: C-141 for possible release of hydrocarbons - October 20, 2009

Dear Hope:

Many thanks for your recent e-mail. In response to your request for more information –

- 1) We have collected water and sludge samples from three locations in the ditch (that runs generally southeast-northwest) on Tuesday morning, October 20, 2009 – a) at the southeast end, b) mid-way along the ditch, and c) at the northwest end. The samples are being analyzed for – water: TPH, method 418.1; sludge: Semi-volatile Organic Compounds (SVOCs), method 8270C, metals (TCLP); and TPH (method 418.1). These are screening samples. Based on our test results, we will plan additional analyses as needed.
- 2) We collected grab samples using dedicated augers for each of the three sludge samples, and dedicated booms with cups and/or bottles for the water samples. There were no field investigation-derived wastes generated. The sample containers, preservatives, cooling requirements and holding times were as required by the test methods and the testing laboratory.
- 3) A figure showing the approximate location of the ditch is attached below. (For your reference, the ditch is somewhat west and south of OW-13. For ease of location on the larger map we have drawn it much bigger than it actually is – the length must be about 40 feet or so, and a few feet wide and deep, with the water depth being a few inches and a foot or so wide.)

Best regards,

Raj



Approximate location of ditch – not to scale



From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]

Sent: Wednesday, October 21, 2009 7:54 AM

To: Rajen, Gaurav

Cc: Riege, Ed; Turri, Mark; Chavez, Carl J, EMNRD; Cobrain, Dave, NMENV; Kielling, John, NMENV

Subject: RE: C-141 for possible release of hydrocarbons - October 20, 2009

Raj

NMED would like some additional information from review of the C-141 form: 1) what analytical methods will be run on the water and sludge samples; 2) provide me with a description of how Gallup will collect the water and sludge samples; 3) provide a figure showing the location of the ditch with the stagnant water. This information can be sent via email. Let me know if you have any questions.

COVER LETTER

Wednesday, November 04, 2009

Gaurav Rajen
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0227
FAX (505) 722-0210

RE: Ditch N of Hill-NW

Order No.: 0910423

Dear Gaurav Rajen:

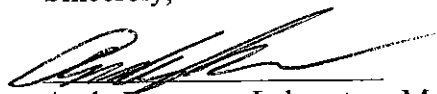
Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 10/22/2009 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,



Andy Freeman, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX



Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup**Client Sample ID:** DITCH - W1**Lab Order:** 0910423**Collection Date:** 10/20/2009 2:40:00 PM**Project:** Ditch N of Hill-NW**Date Received:** 10/22/2009**Lab ID:** 0910423-01**Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 418.1: TPH						Analyst: JB
Petroleum Hydrocarbons, TR	27	1.0		mg/L	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0910423
 Project: Ditch N of Hill-NW
 Lab ID: 0910423-02

Client Sample ID: DITCH -SS1
 Collection Date: 10/20/2009 2:10:00 PM
 Date Received: 10/22/2009
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP						
Mercury	ND	0.020		mg/L	1	Analyst: IC 10/29/2009 2:36:05 PM
EPA METHOD 6010B: TCLP METALS						
Arsenic	ND	5.0		mg/L	1	Analyst: RAGS 10/29/2009 10:31:10 AM
Barium	ND	100		mg/L	10	10/29/2009 11:56:02 AM
Cadmium	ND	1.0		mg/L	1	10/29/2009 10:31:10 AM
Chromium	ND	5.0		mg/L	1	10/29/2009 10:31:10 AM
Lead	ND	5.0		mg/L	1	10/29/2009 10:31:10 AM
Selenium	ND	1.0		mg/L	1	10/29/2009 10:31:10 AM
Silver	ND	5.0		mg/L	1	10/29/2009 10:31:10 AM
EPA METHOD 8270C: SEMIVOLATILES						
Acenaphthene	ND	0.20		mg/Kg	1	Analyst: JDC 11/3/2009 1:37:00 PM
Acenaphthylene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Aniline	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Anthracene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Azobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Benz(a)anthracene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Benzo(a)pyrene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Benzo(b)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Benzo(g,h,i)perylene	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
Benzo(k)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Benzoic acid	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
Benzyl alcohol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Bis(2-chloroethoxy)methane	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Bis(2-chloroethyl)ether	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Bis(2-chloroisopropyl)ether	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Bis(2-ethylhexyl)phthalate	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
4-Bromophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Butyl benzyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Carbazole	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
4-Chloroaniline	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
2-Chloronaphthalene	ND	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
4-Chlorophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Chrysene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Di-n-butyl phthalate	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
Di-n-octyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Dibenz(a,h)anthracene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Dibenzofuran	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
1,2-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM

Qualifiers:
 * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-02

Client Sample ID: DITCH -SS1
Collection Date: 10/20/2009 2:10:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
1,3-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
1,4-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
3,3'-Dichlorobenzidine	ND	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
Diethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Dimethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	11/3/2009 1:37:00 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	11/3/2009 1:37:00 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	11/3/2009 1:37:00 PM
2,4-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
2,6-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
Fluoranthene	ND	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
Fluorene	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
Hexachlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Hexachlorobutadiene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Hexachlorocyclopentadiene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Hexachloroethane	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Indeno(1,2,3-cd)pyrene	ND	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
Isophorone	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
2-Methylnaphthalene	1.1	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
2-Methylphenol	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
N-Nitrosodi-n-propylamine	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
N-Nitrosodiphenylamine	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Naphthalene	1.3	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
2-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
3-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
4-Nitroaniline	ND	0.25		mg/Kg	1	11/3/2009 1:37:00 PM
Nitrobenzene	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
4-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	11/3/2009 1:37:00 PM
Phenanthrene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Phenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Pyrene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Pyridine	ND	0.50		mg/Kg	1	11/3/2009 1:37:00 PM
1,2,4-Trichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 1:37:00 PM
Surr: 2,4,6-Tribromophenol	75.0	35.5-141		%REC	1	11/3/2009 1:37:00 PM
Surr: 2-Fluorobiphenyl	53.9	30.4-128		%REC	1	11/3/2009 1:37:00 PM
Surr: 2-Fluorophenol	69.5	28.1-129		%REC	1	11/3/2009 1:37:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-02

Client Sample ID: DITCH -SS1
Collection Date: 10/20/2009 2:10:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Surr: 4-Terphenyl-d14	43.0	34.6-151		%REC	1	11/3/2009 1:37:00 PM
Surr: Nitrobenzene-d5	55.0	26.5-122		%REC	1	11/3/2009 1:37:00 PM
Surr: Phenol-d5	66.0	37.6-118		%REC	1	11/3/2009 1:37:00 PM
EPA METHOD 418.1: TPH						Analyst: JB
Petroleum Hydrocarbons, TR	22	20		mg/Kg	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-03

Client Sample ID: DITCH - W2
Collection Date: 10/20/2009 2:40:00 PM
Date Received: 10/22/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 418.1: TPH						Analyst: JB
Petroleum Hydrocarbons, TR	6.9	1.0		mg/L	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-04

Client Sample ID: DITCH - SS2
Collection Date: 10/20/2009 2:15:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP						Analyst: IC
Mercury	ND	0.020		mg/L	1	10/29/2009 2:41:25 PM
EPA METHOD 6010B: TCLP METALS						Analyst: RAGS
Arsenic	ND	5.0		mg/L	1	10/29/2009 10:33:38 AM
Barium	ND	100		mg/L	20	10/29/2009 12:00:29 PM
Cadmium	ND	1.0		mg/L	1	10/29/2009 10:33:38 AM
Chromium	ND	5.0		mg/L	1	10/29/2009 10:33:38 AM
Lead	ND	5.0		mg/L	1	10/29/2009 10:33:38 AM
Selenium	ND	1.0		mg/L	1	10/29/2009 10:33:38 AM
Silver	ND	5.0		mg/L	1	10/29/2009 10:33:38 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Acenaphthylene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Aniline	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Azobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Benz(a)anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Benzo(a)pyrene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Benzo(b)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Benzo(g,h,i)perylene	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
Benzo(k)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Benzoic acid	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
Benzyl alcohol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Bis(2-chloroethoxy)methane	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Bis(2-chloroethyl)ether	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Bis(2-chloroisopropyl)ether	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Bis(2-ethylhexyl)phthalate	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
4-Bromophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Butyl benzyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Carbazole	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
4-Chloroaniline	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
2-Chloronaphthalene	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
4-Chlorophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Chrysene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Di-n-butyl phthalate	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
Di-n-octyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Dibenz(a,h)anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Dibenzofuran	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
1,2-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-04

Client Sample ID: DITCH - SS2
Collection Date: 10/20/2009 2:15:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
1,3-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
1,4-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
3,3'-Dichlorobenzidine	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
Diethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Dimethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	11/3/2009 3:06:41 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	11/3/2009 3:06:41 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	11/3/2009 3:06:41 PM
2,4-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
2,6-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
Fluoranthene	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
Fluorene	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
Hexachlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Hexachlorobutadiene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Hexachlorocyclopentadiene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Hexachloroethane	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Indeno(1,2,3-cd)pyrene	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
Isophorone	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
2-Methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
N-Nitrosodi-n-propylamine	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
N-Nitrosodiphenylamine	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Naphthalene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
2-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
3-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
4-Nitroaniline	ND	0.25		mg/Kg	1	11/3/2009 3:06:41 PM
Nitrobenzene	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
4-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	11/3/2009 3:06:41 PM
Phenanthrene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Phenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Pyrene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Pyridine	ND	0.50		mg/Kg	1	11/3/2009 3:06:41 PM
1,2,4-Trichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:06:41 PM
Surr: 2,4,6-Tribromophenol	85.8	35.5-141		%REC	1	11/3/2009 3:06:41 PM
Surr: 2-Fluorobiphenyl	51.5	30.4-128		%REC	1	11/3/2009 3:06:41 PM
Surr: 2-Fluorophenol	46.2	28.1-129		%REC	1	11/3/2009 3:06:41 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-04

Client Sample ID: DITCH - SS2
Collection Date: 10/20/2009 2:15:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Surr: 4-Terphenyl-d14	45.6	34.6-151		%REC	1	11/3/2009 3:06:41 PM
Surr: Nitrobenzene-d5	46.9	26.5-122		%REC	1	11/3/2009 3:06:41 PM
Surr: Phenol-d5	51.5	37.6-118		%REC	1	11/3/2009 3:06:41 PM
EPA METHOD 418.1: TPH						Analyst: JB
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-05

Client Sample ID: DITCH - W3
Collection Date: 10/20/2009 2:45:00 PM
Date Received: 10/22/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Analyst: JB						
EPA METHOD 418.1: TPH						
Petroleum Hydrocarbons, TR	5.4	1.0		mg/L	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0910423
 Project: Ditch N of Hill-NW
 Lab ID: 0910423-06

Client Sample ID: DITCH - SS3
 Collection Date: 10/20/2009 2:25:00 PM
 Date Received: 10/22/2009
 Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
MERCURY, TCLP						Analyst: IC
Mercury	ND	0.020		mg/L	1	10/29/2009 2:43:13 PM
EPA METHOD 6010B: TCLP METALS						Analyst: RAGS
Arsenic	ND	5.0		mg/L	1	10/29/2009 10:38:44 AM
Barium	ND	100		mg/L	10	10/29/2009 12:02:56 PM
Cadmium	ND	1.0		mg/L	1	10/29/2009 10:38:44 AM
Chromium	ND	5.0		mg/L	1	10/29/2009 10:38:44 AM
Lead	ND	5.0		mg/L	1	10/29/2009 10:38:44 AM
Selenium	ND	1.0		mg/L	1	10/29/2009 10:38:44 AM
Silver	ND	5.0		mg/L	1	10/29/2009 10:38:44 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Acenaphthylene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Aniline	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Azobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Benz(a)anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Benzo(a)pyrene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Benzo(b)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Benzo(g,h,i)perylene	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
Benzo(k)fluoranthene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Benzoic acid	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
Benzyl alcohol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Bis(2-chloroethoxy)methane	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Bis(2-chloroethyl)ether	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Bis(2-chloroisopropyl)ether	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Bis(2-ethylhexyl)phthalate	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
4-Bromophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Butyl benzyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Carbazole	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
4-Chloroaniline	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
2-Chloronaphthalene	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
4-Chlorophenyl phenyl ether	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Chrysene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Di-n-butyl phthalate	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
Di-n-octyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Dibenz(a,h)anthracene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Dibenzofuran	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
1,2-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-06

Client Sample ID: DITCH - SS3
Collection Date: 10/20/2009 2:25:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
1,3-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
1,4-Dichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
3,3'-Dichlorobenzidine	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
Diethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Dimethyl phthalate	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	11/3/2009 3:36:50 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	11/3/2009 3:36:50 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	11/3/2009 3:36:50 PM
2,4-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
2,6-Dinitrotoluene	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
Fluoranthene	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
Fluorene	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
Hexachlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Hexachlorobutadiene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Hexachlorocyclopentadiene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Hexachloroethane	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Indeno(1,2,3-cd)pyrene	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
Isophorone	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
2-Methylphenol	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
N-Nitrosodi-n-propylamine	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
N-Nitrosodiphenylamine	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Naphthalene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
2-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
3-Nitroaniline	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
4-Nitroaniline	ND	0.25		mg/Kg	1	11/3/2009 3:36:50 PM
Nitrobenzene	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
4-Nitrophenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	11/3/2009 3:36:50 PM
Phenanthrene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Phenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Pyrene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Pyridine	ND	0.50		mg/Kg	1	11/3/2009 3:36:50 PM
1,2,4-Trichlorobenzene	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	11/3/2009 3:36:50 PM
Surr: 2,4,6-Tribromophenol	88.6	35.5-141		%REC	1	11/3/2009 3:36:50 PM
Surr: 2-Fluorobiphenyl	54.4	30.4-128		%REC	1	11/3/2009 3:36:50 PM
Surr: 2-Fluorophenol	52.3	28.1-129		%REC	1	11/3/2009 3:36:50 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 04-Nov-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0910423
Project: Ditch N of Hill-NW
Lab ID: 0910423-06

Client Sample ID: DITCH - SS3
Collection Date: 10/20/2009 2:25:00 PM
Date Received: 10/22/2009
Matrix: SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Surr: 4-Terphenyl-d14	50.8	34.6-151		%REC	1	11/3/2009 3:36:50 PM
Surr: Nitrobenzene-d5	51.9	26.5-122		%REC	1	11/3/2009 3:36:50 PM
Surr: Phenol-d5	55.4	37.6-118		%REC	1	11/3/2009 3:36:50 PM
EPA METHOD 418.1: TPH						Analyst: JB
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	10/26/2009

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Estimated value
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: Ditch N of Hill-NW

Work Order: 0910423

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 418.1: TPH											
Sample ID: MB-20407		MBLK									
Petroleum Hydrocarbons, TR	ND	mg/Kg	20								
Sample ID: LCS-20407		LCS									
Petroleum Hydrocarbons, TR	108.1	mg/Kg	20	100	0	108	82	114			
Method: EPA Method 418.1: TPH											
Sample ID: MB-20406		MBLK									
Petroleum Hydrocarbons, TR	ND	mg/L	1.0								
Sample ID: LCS-20406		LCS									
Petroleum Hydrocarbons, TR	4.610	mg/L	1.0	5	0	92.2	78.5	120			

Qualifiers:

E Estimated value
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup

Project: Ditch N of Hill-NW

Work Order: 0910423

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-20469

MBLK

Batch ID: 20469 Analysis Date: 11/3/2009 11:51:27 AM

Acenaphthene	ND	mg/Kg	0.20
Acenaphthylene	ND	mg/Kg	0.20
Aniline	ND	mg/Kg	0.20
Anthracene	ND	mg/Kg	0.20
Azobenzene	ND	mg/Kg	0.20
Benz(a)anthracene	ND	mg/Kg	0.20
Benzo(a)pyrene	ND	mg/Kg	0.20
Benzo(b)fluoranthene	ND	mg/Kg	0.20
Benzo(g,h,i)perylene	ND	mg/Kg	0.50
Benzo(k)fluoranthene	ND	mg/Kg	0.20
Benzoic acid	ND	mg/Kg	0.50
Benzyl alcohol	ND	mg/Kg	0.20
Bis(2-chloroethoxy)methane	ND	mg/Kg	0.20
Bis(2-chloroethyl)ether	ND	mg/Kg	0.20
Bis(2-chloroisopropyl)ether	ND	mg/Kg	0.20
Bis(2-ethylhexyl)phthalate	ND	mg/Kg	0.50
4-Bromophenyl phenyl ether	ND	mg/Kg	0.20
Butyl benzyl phthalate	ND	mg/Kg	0.20
Carbazole	ND	mg/Kg	0.20
4-Chloro-3-methylphenol	ND	mg/Kg	0.50
4-Chloroaniline	ND	mg/Kg	0.50
2-Chloronaphthalene	ND	mg/Kg	0.25
2-Chlorophenol	ND	mg/Kg	0.20
4-Chlorophenyl phenyl ether	ND	mg/Kg	0.20
Chrysene	ND	mg/Kg	0.20
Di-n-butyl phthalate	ND	mg/Kg	0.50
Di-n-octyl phthalate	ND	mg/Kg	0.20
Dibenz(a,h)anthracene	ND	mg/Kg	0.20
Dibenzofuran	ND	mg/Kg	0.20
1,2-Dichlorobenzene	ND	mg/Kg	0.20
1,3-Dichlorobenzene	ND	mg/Kg	0.20
1,4-Dichlorobenzene	ND	mg/Kg	0.20
3,3'-Dichlorobenzidine	ND	mg/Kg	0.25
Diethyl phthalate	ND	mg/Kg	0.20
Dimethyl phthalate	ND	mg/Kg	0.20
2,4-Dichlorophenol	ND	mg/Kg	0.40
2,4-Dimethylphenol	ND	mg/Kg	0.30
4,6-Dinitro-2-methylphenol	ND	mg/Kg	0.50
2,4-Dinitrophenol	ND	mg/Kg	0.40
2,4-Dinitrotoluene	ND	mg/Kg	0.50
2,6-Dinitrotoluene	ND	mg/Kg	0.50
Fluoranthene	ND	mg/Kg	0.25
Fluorene	ND	mg/Kg	0.50
Hexachlorobenzene	ND	mg/Kg	0.20

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: Ditch N of Hill-NW

Work Order: 0910423

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-20469

MBLK

Batch ID: 20469 Analysis Date: 11/3/2009 11:51:27 AM

Hexachlorobutadiene	ND	mg/Kg	0.20
Hexachlorocyclopentadiene	ND	mg/Kg	0.20
Hexachloroethane	ND	mg/Kg	0.20
Indeno(1,2,3-cd)pyrene	ND	mg/Kg	0.25
Isophorone	ND	mg/Kg	0.50
2-Methylnaphthalene	ND	mg/Kg	0.25
2-Methylphenol	ND	mg/Kg	0.50
3+4-Methylphenol	ND	mg/Kg	0.20
N-Nitrosodi-n-propylamine	ND	mg/Kg	0.20
N-Nitrosodiphenylamine	ND	mg/Kg	0.20
Naphthalene	ND	mg/Kg	0.20
2-Nitroaniline	ND	mg/Kg	0.20
3-Nitroaniline	ND	mg/Kg	0.20
4-Nitroaniline	ND	mg/Kg	0.25
Nitrobenzene	ND	mg/Kg	0.50
2-Nitrophenol	ND	mg/Kg	0.20
4-Nitrophenol	ND	mg/Kg	0.20
Pentachlorophenol	ND	mg/Kg	0.40
Phenanthrene	ND	mg/Kg	0.20
Phenol	ND	mg/Kg	0.20
Pyrene	ND	mg/Kg	0.20
Pyridine	ND	mg/Kg	0.50
1,2,4-Trichlorobenzene	ND	mg/Kg	0.20
2,4,5-Trichlorophenol	ND	mg/Kg	0.20
2,4,6-Trichlorophenol	ND	mg/Kg	0.20

Sample ID: lcs-20469

LCS

Batch ID: 20469 Analysis Date: 11/3/2009 1:07:17 PM

Acenaphthene	1.200	mg/Kg	0.20	1.67	0	71.8	42.5	90
4-Chloro-3-methylphenol	2.642	mg/Kg	0.50	3.33	0	79.3	39.6	101
2-Chlorophenol	2.403	mg/Kg	0.20	3.33	0	72.2	40.1	96.7
1,4-Dichlorobenzene	1.191	mg/Kg	0.20	1.67	0	71.3	34.6	95.3
2,4-Dinitrotoluene	1.453	mg/Kg	0.50	1.67	0	87.0	37.1	101
N-Nitrosodi-n-propylamine	1.181	mg/Kg	0.20	1.67	0	70.7	33.3	103
4-Nitrophenol	2.636	mg/Kg	0.20	3.33	0	79.2	32.7	125
Pentachlorophenol	2.670	mg/Kg	0.40	3.33	0	80.2	35.5	99.3
Phenol	2.348	mg/Kg	0.20	3.33	0	70.5	35.5	104
Pyrene	1.061	mg/Kg	0.20	1.67	0	63.5	34.4	90.6
1,2,4-Trichlorobenzene	1.217	mg/Kg	0.20	1.67	0	72.9	38.5	95

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: Ditch N of Hill-NW

Work Order: 0910423

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: MERCURY, TCLP											
Sample ID: MB-20461		MBLK				Batch ID: 20461	Analysis Date: 10/29/2009 2:30:49 PM				
Mercury	ND	mg/L	0.020			Batch ID: 20461	Analysis Date: 10/29/2009 2:57:49 PM				
Sample ID: Fluid #1 Check #305		MBLK				Batch ID: 20461	Analysis Date: 10/29/2009 2:57:49 PM				
Mercury	ND	mg/L	0.020			Batch ID: 20461	Analysis Date: 10/29/2009 2:32:34 PM				
Sample ID: LCS-20461		LCS				Batch ID: 20461	Analysis Date: 10/29/2009 2:32:34 PM				
Mercury	ND	mg/L	0.020	0.005	0	102	80	120			
Method: EPA Method 6010B: TCLP Metals											
Sample ID: MB-20451		MBLK				Batch ID: 20451	Analysis Date: 10/29/2009 9:54:41 AM				
Arsenic	ND	mg/L	5.0								
Barium	ND	mg/L	100								
Cadmium	ND	mg/L	1.0								
Chromium	ND	mg/L	5.0								
Lead	ND	mg/L	5.0								
Selenium	ND	mg/L	1.0								
Silver	ND	mg/L	5.0								
Sample ID: LCS-20451		LCS				Batch ID: 20451	Analysis Date: 10/29/2009 9:59:31 AM				
Arsenic	ND	mg/L	5.0	0.5	0	106	80	120			
Barium	ND	mg/L	100	0.5	0.0013	99.4	80	120			
Cadmium	ND	mg/L	1.0	0.5	0	105	80	120			
Chromium	ND	mg/L	5.0	0.5	0	99.1	80	120			
Lead	ND	mg/L	5.0	0.5	0	98.1	80	120			
Selenium	ND	mg/L	1.0	0.5	0	109	80	120			
Silver	ND	mg/L	5.0	0.5	0.0018	106	80	120			

Qualifiers:

E	Estimated value	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING GALLU

Date Received:

10/22/2009

Work Order Number 0910423

Received by: TLS

Checklist completed by:

Signature

Date

Sample ID labels checked by:

Initials

Matrix:

Carrier name FedEx

Shipping container/cooler in good condition?

Yes ☒

No ☐

Not Present ☐

Custody seals intact on shipping container/cooler?

Yes ☒

No ☐

Not Present ☐

Not Shipped ☐

Custody seals intact on sample bottles?

Yes ☒

No ☐

N/A ☐

Chain of custody present?

Yes ☒

No ☐

Chain of custody signed when relinquished and received?

Yes ☒

No ☐

Chain of custody agrees with sample labels?

Yes ☒

No ☐

Samples in proper container/bottle?

Yes ☒

No ☐

Sample containers intact?

Yes ☒

No ☐

Sufficient sample volume for indicated test?

Yes ☒

No ☐

All samples received within holding time?

Yes ☒

No ☐

Water - VOA vials have zero headspace?

No VOA vials submitted ☒

Yes ☐

No ☐

Water - Preservation labels on bottle and cap match?

Yes ☒

No ☐

N/A ☐

Water - pH acceptable upon receipt?

Yes ☒

No ☐

N/A ☐

Number of preserved
bottles checked for
pH:

3
<2 > 12 unless noted
below.

Container/Temp Blank temperature?

3.5°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted

Date contacted:

Person contacted

Contacted by:

Regarding:

Comments:

Corrective Action

[illegible]

Turn-Around Time:

Client:

Client: WESTERN REFINING

Mailing Address:

Mailing Address: GALLUP REFINERY

Phone #: 505 722 3833

email or Fax#:

QA/QC Package:

☒ Standard☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Date _____

Time

Sample Request ID

1997

10/27/01

WATER DITCH - (1) 1

22

$$10 \mid 20 \mid 2 \mid 10$$

SOIL DITCH-SS1

102

$$10202 = 4$$

WATER DITCH - W2

1320

20	2=14

2017 DITCH-552

10/20

1070	2=45

WATER DITCH - W 3

10/01

7-707/01

3016-1511-5

Date: _____

Time:

Relinquished by:

Relinquished by: Adam V

Received by:

Date _____ Time _____

Remarks:

Date:

Time:

Relinquished by:

Received by:

Date _____ Time _____

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



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

April 29, 2015

Beck Larsen

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0258
FAX (505) 722-0210

RE: North Drainage Ditch

OrderNo.: 1504B27

Dear Beck Larsen:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/24/2015 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504B27

Date Reported: 4/29/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: North Drainage Ditch

Project: North Drainage Ditch

Collection Date: 4/23/2015 10:15:00 AM

Lab ID: 1504B27-001

Matrix: AQUEOUS

Received Date: 4/24/2015 3:33:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
Benzene	3600	100		µg/L	100	4/29/2015 3:08:52 AM	R25817
Toluene	89	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Ethylbenzene	530	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Methyl tert-butyl ether (MTBE)	98	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2,4-Trimethylbenzene	100	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,3,5-Trimethylbenzene	35	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Naphthalene	140	20		µg/L	10	4/28/2015 1:15:41 PM	R25817
1-Methylnaphthalene	ND	40		µg/L	10	4/28/2015 1:15:41 PM	R25817
2-Methylnaphthalene	ND	40		µg/L	10	4/28/2015 1:15:41 PM	R25817
Acetone	ND	100		µg/L	10	4/28/2015 1:15:41 PM	R25817
Bromobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Bromodichloromethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Bromoform	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Bromomethane	ND	30		µg/L	10	4/28/2015 1:15:41 PM	R25817
2-Butanone	ND	100		µg/L	10	4/28/2015 1:15:41 PM	R25817
Carbon disulfide	ND	100		µg/L	10	4/28/2015 1:15:41 PM	R25817
Carbon Tetrachloride	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Chlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Chloroethane	ND	20		µg/L	10	4/28/2015 1:15:41 PM	R25817
Chloroform	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Chloromethane	ND	30		µg/L	10	4/28/2015 1:15:41 PM	R25817
2-Chlorotoluene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
4-Chlorotoluene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
cis-1,2-DCE	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
cis-1,3-Dichloropropene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	4/28/2015 1:15:41 PM	R25817
Dibromochloromethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Dibromomethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2-Dichlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,3-Dichlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,4-Dichlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Dichlorodifluoromethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1-Dichloroethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1-Dichloroethene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2-Dichloropropane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,3-Dichloropropane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
2,2-Dichloropropane	ND	20		µg/L	10	4/28/2015 1:15:41 PM	R25817

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	Page 1 of 5
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	
	O RSD is greater than RSDlimit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1504B27

Date Reported: 4/29/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: North Drainage Ditch

Project: North Drainage Ditch

Collection Date: 4/23/2015 10:15:00 AM

Lab ID: 1504B27-001

Matrix: AQUEOUS

Received Date: 4/24/2015 3:33:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: cadg
1,1-Dichloropropene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Hexachlorobutadiene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
2-Hexanone	ND	100		µg/L	10	4/28/2015 1:15:41 PM	R25817
Isopropylbenzene	27	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
4-Isopropyltoluene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
4-Methyl-2-pentanone	ND	100		µg/L	10	4/28/2015 1:15:41 PM	R25817
Methylene Chloride	ND	30		µg/L	10	4/28/2015 1:15:41 PM	R25817
n-Butylbenzene	ND	30		µg/L	10	4/28/2015 1:15:41 PM	R25817
n-Propylbenzene	47	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
sec-Butylbenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Styrene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
tert-Butylbenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	4/28/2015 1:15:41 PM	R25817
Tetrachloroethene (PCE)	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
trans-1,2-DCE	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
trans-1,3-Dichloropropene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2,3-Trichlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2,4-Trichlorobenzene	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1,1-Trichloroethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,1,2-Trichloroethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Trichloroethene (TCE)	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Trichlorofluoromethane	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
1,2,3-Trichloropropane	ND	20		µg/L	10	4/28/2015 1:15:41 PM	R25817
Vinyl chloride	ND	10		µg/L	10	4/28/2015 1:15:41 PM	R25817
Xylenes, Total	730	15		µg/L	10	4/28/2015 1:15:41 PM	R25817
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%REC	10	4/28/2015 1:15:41 PM	R25817
Surr: 4-Bromofluorobenzene	92.8	70-130		%REC	10	4/28/2015 1:15:41 PM	R25817
Surr: Dibromofluoromethane	105	70-130		%REC	10	4/28/2015 1:15:41 PM	R25817
Surr: Toluene-d8	104	70-130		%REC	10	4/28/2015 1:15:41 PM	R25817

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
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504B27

29-Apr-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R25817			RunNo: 25817					
Prep Date:		Analysis Date: 4/28/2015			SeqNo: 765170	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.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504B27

29-Apr-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	5mL rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R25817			RunNo: 25817					
Prep Date:		Analysis Date: 4/28/2015			SeqNo: 765170		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	9.9		10.00		99.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID	100ng lcs1	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R25817			RunNo: 25817					
Prep Date:		Analysis Date: 4/28/2015			SeqNo: 765172		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	21	1.0	20.00	0	104	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1504B27

29-Apr-15

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	100ng lcs1	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	LCSW	Batch ID: R25817		RunNo: 25817						
Prep Date:	Analysis Date: 4/28/2015		SeqNo: 765172		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	24	1.0	20.00	0	121	75.6	144			
Trichloroethene (TCE)	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1504B27**

RcptNo: 1

Received by/date:

A.T.

04/24/15

Logged By: **Ashley Gallegos**

4/24/2015 3:33:00 PM

Aj

Completed By: **Ashley Gallegos**

4/27/2015 9:40:50 AM

Aj

Reviewed By:

gn

04/29/15

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted?
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by:

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			

Turn-Around Time: ☐ Standard ☒ Rush
Project Name:

Mailing Address:
32 GIANT CROSSING ROAD

Phone #:	505	722	3833

Phone #:	505	722

Phone #:	505	722	3833

email or Fax#:	505	863	0930

QA/QC Package:

☐ Standard☐ Standard☐ Other: _____☐ Other _____☐ Other _____☐ EDD (Type)☐ EDD (Type)

Sample Request ID

North Drainage Ditch

100

[illegible][illegible]

Date: 04-24-15

Time

Time: 11:50

Relinquished by:

Relinquished by:

Date:

Time

Time

Relinquished by:

Relinquished by:

Environmental casefile submitted to MHI Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any subcontracted data will be clearly notated on the analytical report.

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request



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

April 07, 2015

Beck Larsen

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-0258
FAX (505) 722-0210

RE: N. Drainage Ditch

OrderNo.: 1503979

Dear Beck Larsen:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/20/2015 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1503979

Date Reported: 4/7/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: A1

Project: N. Drainage Ditch

Collection Date: 3/19/2015 11:45:00 AM

Lab ID: 1503979-001

Matrix: AQUEOUS

Received Date: 3/20/2015 4:25:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: JME
Diesel Range Organics (DRO)	6.4	1.0		mg/L	1	3/24/2015 7:35:03 PM	18263
Motor Oil Range Organics (MRO)	11	5.0		mg/L	1	3/24/2015 7:35:03 PM	18263
Surr: DNOP	118	76.5-150		%REC	1	3/24/2015 7:35:03 PM	18263
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	21	2.5		mg/L	50	3/25/2015 11:04:58 AM	R25071
Surr: BFB	94.1	80-120		%REC	50	3/25/2015 11:04:58 AM	R25071
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Methyl tert-butyl ether (MTBE)	200	120		µg/L	50	3/25/2015 11:04:58 AM	R25071
Benzene	5200	100		µg/L	100	3/25/2015 6:50:12 PM	R25071
Toluene	130	50		µg/L	50	3/25/2015 11:04:58 AM	R25071
Ethylbenzene	630	50		µg/L	50	3/25/2015 11:04:58 AM	R25071
Xylenes, Total	1200	100		µg/L	50	3/25/2015 11:04:58 AM	R25071
1,2,4-Trimethylbenzene	240	50		µg/L	50	3/25/2015 11:04:58 AM	R25071
1,3,5-Trimethylbenzene	78	50		µg/L	50	3/25/2015 11:04:58 AM	R25071
Surr: 4-Bromofluorobenzene	113	80-120		%REC	50	3/25/2015 11:04:58 AM	R25071
EPA METHOD 7470: MERCURY							Analyst: MED
Mercury	ND	0.00020		mg/L	1	3/27/2015 12:45:07 PM	18373
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: JLF
Arsenic	0.16	0.020		mg/L	1	3/27/2015 3:46:49 PM	18333
Barium	12	0.40		mg/L	20	3/27/2015 4:00:54 PM	18333
Cadmium	ND	0.0020		mg/L	1	3/27/2015 3:46:49 PM	18333
Chromium	ND	0.0060		mg/L	1	3/27/2015 3:46:49 PM	18333
Lead	0.0058	0.0050		mg/L	1	3/27/2015 3:46:49 PM	18333
Selenium	ND	0.050		mg/L	1	3/27/2015 3:46:49 PM	18333
Silver	ND	0.0050		mg/L	1	3/27/2015 3:46:49 PM	18333

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	Page 1 of 9
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	
	O RSD is greater than RSDlimit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1503979

Date Reported: 4/7/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: B1

Project: N. Drainage Ditch

Collection Date: 3/19/2015 11:55:00 AM

Lab ID: 1503979-002

Matrix: AQUEOUS

Received Date: 3/20/2015 4:25:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: JME
Diesel Range Organics (DRO)	6.5	1.0		mg/L	1	3/24/2015 8:02:46 PM	18263
Motor Oil Range Organics (MRO)	11	5.0		mg/L	1	3/24/2015 8:02:46 PM	18263
Surr: DNOP	119	76.5-150		%REC	1	3/24/2015 8:02:46 PM	18263
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	21	5.0		mg/L	100	3/25/2015 1:57:29 PM	R25071
Surr: BFB	96.8	80-120		%REC	100	3/25/2015 1:57:29 PM	R25071
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	3/25/2015 1:57:29 PM	R25071
Benzene	5400	100		µg/L	100	3/25/2015 1:57:29 PM	R25071
Toluene	130	100		µg/L	100	3/25/2015 1:57:29 PM	R25071
Ethylbenzene	580	100		µg/L	100	3/25/2015 1:57:29 PM	R25071
Xylenes, Total	1200	200		µg/L	100	3/25/2015 1:57:29 PM	R25071
1,2,4-Trimethylbenzene	220	100		µg/L	100	3/25/2015 1:57:29 PM	R25071
1,3,5-Trimethylbenzene	ND	100		µg/L	100	3/25/2015 1:57:29 PM	R25071
Surr: 4-Bromofluorobenzene	115	80-120		%REC	100	3/25/2015 1:57:29 PM	R25071
EPA METHOD 7470: MERCURY							Analyst: MED
Mercury	ND	0.00020		mg/L	1	3/27/2015 12:46:58 PM	18373
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: JLF
Arsenic	0.28	0.020		mg/L	1	3/27/2015 3:48:18 PM	18333
Barium	20	0.40		mg/L	20	3/27/2015 4:07:11 PM	18333
Cadmium	ND	0.0020		mg/L	1	3/27/2015 3:48:18 PM	18333
Chromium	ND	0.0060		mg/L	1	3/27/2015 3:48:18 PM	18333
Lead	0.012	0.0050		mg/L	1	3/27/2015 3:48:18 PM	18333
Selenium	ND	0.050		mg/L	1	3/27/2015 3:48:18 PM	18333
Silver	ND	0.0050		mg/L	1	3/27/2015 3:48:18 PM	18333

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
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit
	O RSD is greater than RSDlimit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S Spike Recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1503979

Date Reported: 4/7/2015

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: C1

Project: N. Drainage Ditch

Collection Date: 3/19/2015 12:08:00 PM

Lab ID: 1503979-003

Matrix: AQUEOUS

Received Date: 3/20/2015 4:25:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE							Analyst: JME
Diesel Range Organics (DRO)	8.9	1.0		mg/L	1	3/24/2015 8:30:24 PM	18263
Motor Oil Range Organics (MRO)	14	5.0		mg/L	1	3/24/2015 8:30:24 PM	18263
Surr: DNOP	131	76.5-150		%REC	1	3/24/2015 8:30:24 PM	18263
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	20	5.0		mg/L	100	3/25/2015 2:26:50 PM	R25071
Surr: BFB	94.2	80-120		%REC	100	3/25/2015 2:26:50 PM	R25071
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	3/25/2015 2:26:50 PM	R25071
Benzene	5300	100		µg/L	100	3/25/2015 2:26:50 PM	R25071
Toluene	120	100		µg/L	100	3/25/2015 2:26:50 PM	R25071
Ethylbenzene	550	100		µg/L	100	3/25/2015 2:26:50 PM	R25071
Xylenes, Total	1100	200		µg/L	100	3/25/2015 2:26:50 PM	R25071
1,2,4-Trimethylbenzene	210	100		µg/L	100	3/25/2015 2:26:50 PM	R25071
1,3,5-Trimethylbenzene	ND	100		µg/L	100	3/25/2015 2:26:50 PM	R25071
Surr: 4-Bromofluorobenzene	109	80-120		%REC	100	3/25/2015 2:26:50 PM	R25071
EPA METHOD 7470: MERCURY							Analyst: MED
Mercury	ND	0.00020		mg/L	1	3/27/2015 12:48:50 PM	18373
EPA 6010B: TOTAL RECOVERABLE METALS							Analyst: JLF
Arsenic	0.28	0.020		mg/L	1	3/27/2015 3:49:56 PM	18333
Barium	19	0.40		mg/L	20	3/27/2015 4:08:38 PM	18333
Cadmium	ND	0.0020		mg/L	1	3/27/2015 3:49:56 PM	18333
Chromium	ND	0.0060		mg/L	1	3/27/2015 3:49:56 PM	18333
Lead	0.014	0.0050		mg/L	1	3/27/2015 3:49:56 PM	18333
Selenium	ND	0.050		mg/L	1	3/27/2015 3:49:56 PM	18333
Silver	ND	0.0050		mg/L	1	3/27/2015 3:49:56 PM	18333

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	Page 3 of 9
	E Value above quantitation range	H Holding times for preparation or analysis exceeded	
	J Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit	
	O RSD is greater than RSDlimit	P Sample pH Not In Range	
	R RPD outside accepted recovery limits	RL Reporting Detection Limit	
	S Spike Recovery outside accepted recovery limits		



Wet Chemistry by Method 9012B/SW846 7.3.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive CN (SW846 7.3.3.2)	ND		0.125	1	03/27/2015 10:33	WG777819

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

Wet Chemistry by Method 9034/9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulf.(SW846 7.3.4.1)	ND		25.0	1	03/25/2015 16:16	WG777821

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity	Non-Corrosive		1	03/31/2015 10:04	WG778771

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	154		1	03/27/2015 08:41	WG778443

L755335

Wet Chemistry by Method 9012B/SW846 7.3.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive CN (SW846 7.3.3.2)	mg/l		mg/l			
	ND		0.125	1	03/27/2015 10:34	WG777819

Wet Chemistry by Method 9034/9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulf.(SW846 7.3.4.1)	mg/l		mg/l			
	ND		25.0	1	03/25/2015 16:16	WG777821

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Corrosivity					
	Non-Corrosive		1	03/31/2015 10:04	WG778771

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Flashpoint	deg F				
	DNF AT 170 F		1	03/27/2015 08:41	WG778443

Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Wet Chemistry by Method 9012B/SW846 7.3.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive CN (SW846 7.3.3.2)	ND		0.125	1	03/27/2015 10:35	WG777819

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Wet Chemistry by Method 9034/9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Reactive Sulf. (SW846 7.3.4.1)	ND		25.0	1	03/25/2015 16:16	WG777821

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
				date / time	
Corrosivity	Non-Corrosive		1	03/31/2015 10:04	WG778771

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	125		1	03/27/2015 08:41	WG778443

Method Blank (MB)

(MB) 03/27/15 10:29

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Reactive CN (SW846 7.3.3.2)	ND		0.125

L754785-02 Original Sample (OS) • Duplicate (DUP)

(OS) 03/27/15 10:30 • (DUP) 03/27/15 10:31

Analyte	Original Result mg/l	DUP Result mg/l	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive CN (SW846 7.3.3.2)	ND	ND	0.00		20

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

(LCS) 03/27/15 09:45 • (LCSD) 03/27/15 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Reactive CN (SW846 7.3.3.2)	0.100	0.105	0.102	105	102	90.0-110			2.90	20

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

Method Blank (MB)

(MB) 03/25/15 16:16

Analyte	MB Result mg/l	MB Qualifier	MB RDL mg/l
Reactive Sulf.(SW846 7.3.4.1)	ND		25.0

L754785-02 Original Sample (OS) • Duplicate (DUP)

(OS) 03/25/15 16:16 • (DUP) 03/25/15 16:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Reactive Sulf.(SW846 7.3.4.1)	ND	ND	1	0.00		20

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

(LCS) 03/25/15 16:16 • (LCSD) 03/25/15 16:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Reactive Sulf.(SW846 7.3.4.1)	100	89.4	99.3	89.4	99.0	70.0-130			10.5	20

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

L755335-01 Original Sample (OS) • Duplicate (DUP)

(OS) 03/31/15 10:04 • (DUP) 03/31/15 10:04

Analyte	Original Result		DUP Result	Dilution	DUP RPD		DUP Qualifier		DUP RPD Limits	
					%				%	
Corrosivity	Non-Corrosiv e		Non-Corrosiv e	1	0.00				10	

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

(LCS) 03/31/15 10:04 • (LCSD) 03/31/15 10:04

Analyte	Spike Amount		LCS Result		LCSD Result		LCS Rec.		LCSD Rec.		Rec. Limits		LCS Qualifier		LCSD Qualifier		RPD		RPD Limits	
							%		%		%		%		%		%		%	
Corrosivity	7.84		7.81		7.83		99.6		99.9		98.3-102				0.256		10			

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

L755335-01 Original Sample (OS) • Duplicate (DUP)

(OS) 03/27/15 08:41 • (DUP) 03/27/15 08:41						
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	150	154	1	0.00		20

L755335-02 Original Sample (OS) • Duplicate (DUP)

(OS) 03/27/15 08:41 • (DUP) 03/27/15 08:41						
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	DNF AT 170 F	DNF AT 170 F		0.00		20

L755335-03 Original Sample (OS) • Duplicate (DUP)

(OS) 03/27/15 08:41 • (DUP) 03/27/15 08:41						
Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	deg F	deg F		%		%
Flashpoint	130	126	1	0.80		20

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

(LCS) 03/27/15 08:41 • (LCSD) 03/27/15 08:41									
Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD
	deg F	deg F	deg F	%	%	%			%
Flashpoint	82.0	82.80	83.80	101	102	96.0-104			120
									7

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	MB-18263		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 18263		RunNo: 24993					
Prep Date:	3/20/2015		Analysis Date: 3/23/2015		SeqNo: 737414		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.96		1.000		95.9	76.5	150			

Sample ID	LCS-18263		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 18263		RunNo: 25014					
Prep Date:	3/20/2015		Analysis Date: 3/24/2015		SeqNo: 738573		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.1	1.0	5.000	0	102	60.1	156			
Surr: DNOP	0.52		0.5000		105	76.5	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: R25071		RunNo: 25071					
Prep Date:			Analysis Date: 3/25/2015		SeqNo: 739716		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	18		20.00		89.6	80	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: R25071		RunNo: 25071					
Prep Date:			Analysis Date: 3/25/2015		SeqNo: 739717		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.4	80	120			
Surr: BFB	20		20.00		102	80	120			

Sample ID	1503979-002AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	B1		Batch ID: R25071		RunNo: 25071					
Prep Date:			Analysis Date: 3/25/2015		SeqNo: 739875		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	72	5.0	50.00	20.62	103	51	131			
Surr: BFB	2100		2000		107	80	120			

Sample ID	1503979-002AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	B1		Batch ID: R25071		RunNo: 25071					
Prep Date:			Analysis Date: 3/25/2015		SeqNo: 739877		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	69	5.0	50.00	20.62	95.8	51	131	4.95	20	
Surr: BFB	2200		2000		108	80	120	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBW	Batch ID:	R25071	RunNo:	25071					
Prep Date:		Analysis Date:	3/25/2015	SeqNo:	740176	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Surr: 4-Bromofluorobenzene	20		20.00		101	80	120			

Sample ID	100NG BTEX LCS	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSW	Batch ID:	R25071	RunNo:	25071					
Prep Date:		Analysis Date:	3/25/2015	SeqNo:	740177	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	23	2.5	20.00	0	117	72.5	125			
Benzene	23	1.0	20.00	0	114	80	120			
Toluene	22	1.0	20.00	0	109	80	120			
Ethylbenzene	21	1.0	20.00	0	105	80	120			
Xylenes, Total	64	2.0	60.00	0	106	80	120			
1,2,4-Trimethylbenzene	22	1.0	20.00	0	109	80	120			
1,3,5-Trimethylbenzene	22	1.0	20.00	0	109	80	120			
Surr: 4-Bromofluorobenzene	24		20.00		119	80	120			

Sample ID	1503979-001AMS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	A1	Batch ID:	R25071	RunNo:	25071					
Prep Date:		Analysis Date:	3/25/2015	SeqNo:	740186	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	1400	120	1000	195.9	118	64.7	132			
Benzene	6100	50	1000	5124	102	77.5	121			E
Toluene	1200	50	1000	131.2	112	78.6	122			
Ethylbenzene	1700	50	1000	630.5	108	78.1	128			
Xylenes, Total	4500	100	3000	1249	108	80	120			
1,2,4-Trimethylbenzene	1300	50	1000	242.2	109	79.1	128			
1,3,5-Trimethylbenzene	1200	50	1000	77.50	108	80	120			
Surr: 4-Bromofluorobenzene	1200		1000		124	80	120			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	1503979-001AMSD			SampType:	MSD		TestCode:	EPA Method 8021B: Volatiles			
Client ID:	A1			Batch ID:	R25071		RunNo:	25071			
Prep Date:				Analysis Date:	3/25/2015		SeqNo:	740187		Units:	µg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Methyl tert-butyl ether (MTBE)	1300	120	1000	195.9	108	64.7	132	7.98	20	ES	
Benzene	5700	50	1000	5124	57.9	77.5	121	7.48	20		
Toluene	1200	50	1000	131.2	102	78.6	122	7.92	20		
Ethylbenzene	1600	50	1000	630.5	94.9	78.1	128	7.90	20		
Xylenes, Total	4200	100	3000	1249	97.0	80	120	7.35	20		
1,2,4-Trimethylbenzene	1300	50	1000	242.2	103	79.1	128	4.57	20		
1,3,5-Trimethylbenzene	1100	50	1000	77.50	103	80	120	4.83	20		
Surr: 4-Bromofluorobenzene	1200		1000		117	80	120	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	MB-18373		SampType: MBLK		TestCode: EPA Method 7470: Mercury					
Client ID:	PBW		Batch ID: 18373		RunNo: 25119					
Prep Date:	3/27/2015		Analysis Date: 3/27/2015		SeqNo: 741758		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-18373		SampType: LCS		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW		Batch ID: 18373		RunNo: 25119					
Prep Date:	3/27/2015		Analysis Date: 3/27/2015		SeqNo: 741759		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	96.5	80	120			

Sample ID	LCSD-18373		SampType: LCSD		TestCode: EPA Method 7470: Mercury					
Client ID:	LCSS02		Batch ID: 18373		RunNo: 25119					
Prep Date:	3/27/2015		Analysis Date: 3/27/2015		SeqNo: 741760		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.1	80	120	2.60	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503979

07-Apr-15

Client: Western Refining Southwest, Gallup

Project: N. Drainage Ditch

Sample ID	MB-18333		SampType: MBLK		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	PBW		Batch ID: 18333		RunNo: 25123					
Prep Date:	3/25/2015		Analysis Date: 3/27/2015		SeqNo: 742830		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	0.010	0.0050								

Sample ID	LCS-18333		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 18333		RunNo: 25123					
Prep Date:	3/25/2015		Analysis Date: 3/27/2015		SeqNo: 742831		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.53	0.020	0.5000	0	106	80	120			
Barium	0.49	0.020	0.5000	0	97.3	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.3	80	120			
Chromium	0.49	0.0060	0.5000	0	98.5	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Selenium	0.50	0.050	0.5000	0	99.8	80	120			
Silver	0.11	0.0050	0.1000	0	107	80	120			B

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
P Sample pH Not In Range
RL Reporting Detection Limit



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: Western Refining Gallup

Work Order Number: 1503979

RcptNo: 1

Received by/date:

CS

03/20/15

Logged By: Ashley Gallegos

3/20/2015 4:25:00 PM

Completed By: Ashley Gallegos

3/23/2015 11:08:48 AM

Reviewed By:

JA

03/23/15

Chain of Custody

1. Custody seals intact on sample bottles?
2. Is Chain of Custody complete?
3. How was the sample delivered?

Yes ☐

No ☐

Not Present ☒

Yes ☒

No ☐

Not Present ☐

Courier

Log In

4. Was an attempt made to cool the samples?
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?
6. Sample(s) in proper container(s)?
7. Sufficient sample volume for indicated test(s)?
8. Are samples (except VOA and ONG) properly preserved?
9. Was preservative added to bottles?
For Metals Analysis: Added 1 mL HNO_3
10. VOA vials have zero headspace?
11. Were any sample containers received broken?

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☒

No ☒

Yes ☒

No ☒

NA ☐

Yes ☒

No ☐

No VOA Vials ☐

Yes ☐

No ☒

Yes ☒

No ☐

of preserved bottles checked for pH:

12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

14. Is it clear what analyses were requested?

15. Were all holding times able to be met?
(If no, notify customer for authorization.)

Yes ☒

No ☐

Adjusted?

Yes ☒

No ☐

Yes ☒

No ☐

Checked by:

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Gallup Refinery
 Mailing Address: 922 Giant Crossing Rd
Gallup, NM 87301
 Phone #: (505) 722-3833
 email or Fax#: (505) 863-0930

Turn-Around Time: ☒ Standard ☐ Rush
 Project Name: N. Drainage Ditch
 Project #:
 Project Manager: Beck Larsen

QA/QC Package: ☐ Level 4 (Full Validation)
 Accreditation: ☒ NELAP ☐ Other
☐ EDD (Type)

Sampler: ACT (K. Sanchez)
 On Ice: ☒ Yes ☐ No
 Sample Temperature: 1.0°C

Date	Time	Matrix	Sample Request ID
3/19/15	1150	W	A1 water
	1150	W	A1 surface
	1150	W	A1 water
	1145	W	A1 surface
3/19/15	1145	W	A1 water
	1206	W	B1 water
	1206	W	B1 surface
	1206	W	B1 water
	1155	W	B1 surface
3/19/15	1155	W	B1 water

Container Type and #	Preservative Type	HEAL No.
G-3	HCL	1503079
PI-1	HNO3	-001
G-1	NONE	
PI-1	2% A24	
PI-1	NaOH	
G-3	HCL	-002
PI-1	HNO3	
G-1	NONE	
PI-1	2% A24	
PI-1	NaOH	

Date: 3/19/15 Time: 1400
 Relinquished by: [Signature]
 Date: 3/20/15 Time: 1625
 Relinquished by: [Signature]

Received by: [Signature] Date: 3/20/15 Time: 10:00
 Received by: [Signature] Date: 03/20/15 Time: 1625

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 + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RORA 8 Metals	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	RCI	Air Bubbles (Y or N)
X		X				X					X	
											X	
											X	
											X	
											X	
											X	
											X	
											X	

Remarks: Refer To Attached MAP

Appendix B
North Drainage Ditch
May 2015 Soil Boring Logs



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Aguirre
Drilling Rig : CME75
Drilling Method : 7.25" Hollow-Stem Auger
Sampling Method : 2" Diameter Split Spoon
Comments : 2' Long
Total Depth : 20'
Ground Water : Not Encountered
Start Date : 5-11-2015
Finish Date : 5-11-2015

WELL NO. NDD-1

(Sheet 1 of 1)

Elev., TOC (ft.msl) :
Elev., PAD (ft. msl) :
Elev., GL (ft. msl) : 6900.20
Site Coordinates :
N : N 1635884.14
E : E 2545623.67

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
-2								
-1								
0								
1	4.1			ML	90		CLAYEY SILT, low,soft, dry to damp, reddish brown, no odor,	
2				CL	90		SILTY CLAY, low, very stiff, dry, reddish brown, no odor,	
3	8.1			CL	50		SILTY CLAY, SIMILAR TO ABOVE (STA), trace calcareous,	
4								
5	9.3			CL	50		SILTY CLAY, STA,	
6								
7	10.1			CL	60		SILTY CLAY, STA,	
8								
9	9.9			CL	40		SILTY CLAY, STA,	
10				CL	60		SILTY CLAY, STA,	
11	8.2			CL	60		SANDY CLAY, low, stiff, damp to dry, dark brown, no odor,	
12								
13	6.1			CL	60		SILTY CLAY, low, stiff, dry to damp, brown, no odor, calcareous,	
14								
15	5.2			CLST	60		CLAYSTONE, low, very stiff, damp to dry, reddish purple, no odor, trace grey,	
16								
17	5.1			CLST	60		CLAYSTONE, STA, increase in grey, no odor,	
18								
19	6.3			CLST	60		CLAYSTONE, STA, no odor, darker purple.	
20								

1010 Travis Street
Houston, Texas 77002
713-955-1230

DiSorbo Consulting, LLC

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

Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Aguirre
Drilling Rig : CME75
Drilling Method : 7.25" Hollow-Stem Auger
Sampling Method : 2" Diameter Split Spoon
Comments : 2' Long
Total Depth : 20'
Ground Water : Not Encountered
Start Date : 5-11-2015
Finish Date : 5-11-2015

WELL NO. NDD-2

(Sheet 1 of 1)

Elev., TOC (ft.msl) :
Elev., PAD (ft. msl) :
Elev., GL (ft. msl) : 6912.08
Site Coordinates :
N : N 1635689.96
E : E 2545870.43

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
-2								
-1								
0								
1	9.7			CL	50		SILTY CLAY, low, soft to very stiff, damp to dry, reddish brown, no odor,	
2								
3	14.4			CL	50		SILTY CLAY, SIMILAR TO ABOVE (STA), very stiff, no odor,	
4								
5	17.1			CLST	50		CLAYSTONE, low, very stiff, dry, reddish purple, no odor, trace grey,	
6								
7	18.0			CLST	50		CLAYSTONE, STA, purple, no odor, very dense,	
8								
9	14.8			CLST	50		CLAYSTONE, STA, no odor,	
10								
11	16.3			CLST	50		CLAYSTONE, STA, purple and grey, no odor,	
12								
13	13.5			CLST	50		CLAYSTONE, STA, no odor,	
14								
15	12.2			CLST	50		CLAYSTONE, STA, no odor,	
16								
17	12.4			CLST	50		CLAYSTONE, STA, no odor,	
18								
19	10.8			CLST	50		CLAYSTONE, STA, no odor.	
20								

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Houston, Texas 77002
713-955-1230

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

Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Aguirre
Drilling Rig : CME75
Drilling Method : 7.25" Hollow-Stem Auger
Sampling Method : 2" Diameter Split Spoon
Comments : 2' Long
Total Depth : 16'
Ground Water : 10.52' BTOC on 5-14-2015
Start Date : 5-11-2015
Finish Date : 5-11-2015

WELL NO. NDD-3

(Sheet 1 of 1)

Elev., TOC (ft.msl) :
Elev., PAD (ft. msl) :
Elev., GL (ft. msl) :
Site Coordinates :
N : N35°29.612'
E : W108°25.612'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
-3								NDD-3 Top of Casing 2.83' Above Ground Level 2" Sch 40 PVC w/Threaded Joints Bentonite Pellets 10/20 Sieve Sand Filter Pack 2" Sch 40 PVC Slotted 0.01" Screen w/Threaded Joints 2" Flush Threaded Sch 40 PVC Cap
-2								
-1								
0								
1	14.2			CL	60		SILTY CLAY, low, soft, damp, brown, no odor,	
2								
3	12.2			CL	80		SILTY CLAY, SIMILAR TO ABOVE (STA), firm, no odor,	
4								
5	14.4			CL	70		SILTY CLAY, STA, no odor,	
6								
7	9.9			CH	90		SILTY CLAY, high, firm, damp, light tan and brown, black organics, no odor,	
8								
9	10.7			CH	80		CLAY, high, firm, damp, brown trace light tan, no odor,	
10								
11	11.9	▼		CH	80		CLAY, STA,	
12				SC	80		CLAYEY GRAVELLY SAND, fine grain sand with sandstone gravel and low plastic clay, firm, moist to saturated, brown, no odor,	
13	13.9			CLST	50		CLAYSTONE, very stiff, damp to dry, purple grey, no odor,	
14								
15	13.5			CLST	50		CLAYSTONE, STA, no odor.	
16								
17								
18								
19								
20								

1010 Travis Street
Houston, Texas 77002
713-955-1230

DiSorbo Consulting, LLC

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

Appendix C

Waste Manifests



6133 Edith Blvd. NE
Albuquerque, NM 87107
Phone: (505) 349-5220
Fax: (505) 344-7986

GENERATOR WASTE PROFILE SHEET

A. GENERATOR INFORMATION

Generator Name: WESTERN REFINING SOUTHWEST GALLUP REFINING
Mailing Address: I-40 exit 39 Route 3 Box 7
Jamestown, NM 87347
Site Pick-up Address: I-40 exit 39
Jamestown, NM 87347
Technical Contact: Thurman (Beck) Larson
Name of Waste: SOIL - DRILL CUTTINGS
Process Generating: SOIL SAMPLING

Title: MAIN CONTACT

Profile Number: ACT14825
Generator US EPA ID: NMD000333211
Phone:
Fax:
Email:

NAICS CODE: 211111

Form Code: W301

Source Code: G39

B. PHYSICAL CHARACTERISTICS OF WASTE AT 25C OF 77F

Physical State: SOLID Color: BROWN Clarity: CLOUDY Phase Separation: SINGLE Odor: SOIL
Number of Layers:
PH: SOLID Specific Gravity: > 1 SP. GR. Flash Point (F): > 200 F BTU Value: N/A

C. Chemical Composition / UHC's

BASED UPON: ANALYTICAL (INCLUDED)

Range
GENERATOR KNOWLEDGE ☒

SOIL - DRILL CUTTINGS	100	- 100	%

D. METALS

Total (PPM)

EP Toxicity (mg/l)

Arsenic:	Silver:
Barium:	Copper:
Cadmium:	Nickel:
Chromium:	Zinc:
Lead:	Thallium:
Mercury:	
Chromium, Hexavalent	
Selenium:	

E. OTHER COMPONENTS

OXIDIZER:	N	REACTIVE SULFIDES PPM	N
EXPLOSIVE:	N	REACTIVE CYANIDES PPM	N
SHOCK SENSITIVE:	N	WATER/AIR REACTIVE	N
TIRES:	N	THERMALLY UNSTABLE	N
PYROPHORIC:	N	TSCA REG PCB WASTE:	N
RADIOACTIVE:	N	COMPRESSED GASSES:	N
EXEMPT RAD:	N	CERCLA/SUPERFUND:	N
ETHIOLOGICAL:	N	PESTICIDE	N
		MAUFACTURING WASTE:	N

HALOGENATED ORGANIC COMPOUNDS PER 40 CFR 268, APPENDIX III
DEBRIS N <500 PPM VOC as generated

Subject to NESHAP Regulations N

US EPA Hazardous Waste

US EPA Hazardous Waste Codes: ; NONE

F. Shipping Information:

DOT Hazardous Material NO Exempted NO
Proper Shipping Name: Non-RCRA/Non-DOT Regulated Material Solid (SOIL - DRILL CUTTINGS)
Hazard Class:
ID #:
PG:
Anticipated Volume (Units): 4 DM
Per: YEAR

G. Special Handling Instructions:

H. GENERATOR'S CERTIFICATION:

I hereby certify that all information in this and all the attached documents is complete and accurate, and that all known or suspected hazards have been disclosed. I further certify that any samples submitted with this profile are representative of the waste to be shipped and are taken in accordance with SW 846 or other approved procedures. I agree to notify Advanced Chemical Treatment in writing when the process generating this waste stream changes or when I have reason to believe the data contained herein is not complete and accurate.

Signature

Print Name: Cheryl Johnson

Title

Envrn Specialist

Date

11-14-12

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number NMD000333211	2. Page 1 of 2	3. Emergency Response Phone 800-424-9300	4. Manifest Tracking Number 009001751 FLE				
5. Generator's Name and Mailing Address WESTERN REFINING SOUTH-WEST GALLUP REFINING 92 GIANT CROSSING ROAD GALLUP, NM 87301 Generator's Phone: 505-722-0211			Generator's Site Address (if different than mailing address)						
6. Transporter 1 Company Name Advanced Chemical Transport Inc. (SV)			U.S. EPA ID Number CAR000070540						
7. Transporter 2 Company Name			U.S. EPA ID Number						
8. Designated Facility Name and Site Address Advanced Chemical Treatment 6133 Edith Blvd NE Albuquerque, NM 87107 Facility's Phone: 505-349-5220			U.S. EPA ID Number NMD002208627						
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
	X	1. NA3077, Hazardous waste, solid, n.o.s. (SOIL CONTAMINATED WITH HYDROCARBONS FROM API SEPARATOR), 9, PG III	01	DM	400	P	K051		
	X	2. RQ, UN3175, Waste Solids containing flammable liquid, n.o.s. (acetone, methanol), 4.1, PG II	03	CF	375	P	D001 F003 F005		
	X	3. NA3082, Hazardous waste, liquid, n.o.s. (LEAD, ARSENIC), 9, PG III	01	DM	250	P	D004 D008 D009		
		4. Non-RCRA/Non-DOT Regulated Material Solid (SOIL - DRILL CUTTINGS)	(15)	DM	11,000	P	NONE		
14. Special Handling Instructions and Additional Information Project Number 103463 Document #: D121904 1) ERG#171: ACT8736 WEA(81)SS DM 2) ERG#133: ACT51807 WEA(03)CYB 3) ERG#171: ACT3416 WEA(01)SS DM 4) ACT14825 WEA(15)SS DM 24 hour emergency contact: CHEMTREC 800-424-9300									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Officer's Printed/Typed Name ALVIN DORSEY		Signature Alvin Dorsey		Month 08		Day 01		Year 16	
TRANSPORTER	16. International Shipments ☐ Import to U.S. ☐ Export from U.S.		Port of entry/exit: Date leaving U.S.:						
	Transporter signature (for exports only):								
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials		Signature		Month		Day		Year
	Transporter 1 Printed/Typed Name Robert Hurd		Signature		Month 08		Day 01		Year 16
TRANSPORTER	Transporter 2 Printed/Typed Name		Signature		Month		Day		Year
DESIGNATED FACILITY	18. Discrepancy								
	18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection								
	Line 2 actual weight 1134.135 Manifest Reference Number:								
	18b. Alternate Facility (or Generator) U.S. EPA ID Number								
DESIGNATED FACILITY	Facility's Phone:								
	18c. Signature of Alternate Facility (or Generator) Month Day Year								
	19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
DESIGNATED FACILITY	1. H141 2. H141 3. H141 4. H141								
	20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
DESIGNATED FACILITY	Printed/Typed Name Kris Gwasha		Signature Kris Gwasha		Month 08		Day 11		Year 16

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number NMD000333211		2. Page 1 of 2		3. Emergency Response Phone 800-424-9300		4. Manifest Tracking Number 009005992 FLE	
		5. Generator's Name and Mailing Address: OUTWEST GALLUP REFINING 92 GIANT CROSSING ROAD GALLUP, NM 87301 505 722 0258 Generator's Phone:							
6. Transporter 1 Company Name Advanced Chemical Transport Inc. (SV)		U.S. EPA ID Number CAR000070540							
7. Transporter 2 Company Name		U.S. EPA ID Number							
8. Designated Facility Name and Site Address Advanced Chemical Treatment 6133 Edith Blvd NE Albuquerque, NM 87107 505-349-5220 Facility's Phone:		U.S. EPA ID Number NMD002208627							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
				No.	Type				
X	1. NA3077, Hazardous waste, solid, n.o.s. (chromium), 9, PGIII			02	DM	400	P	DA07	
X	2. NA1993, Combustible liquid, n.o.s., Comb liq, PGIII (DIESEL IN VIALS)			01	DM	300	P	NONE	
X	3. RO, NA3077, Hazardous waste, solid, n.o.s. (oil, sludge), 9, PGII (RO-K050)			05	DM	1500	P	K050	
X	4. RO, UN3175, Waste Solids containing flammable liquid, n.o.s. (acetone, methanol), 4.1, PGII			03	CF	900	P	DA01	F003 F005
14. Special Handling Instructions and Additional Information: Project Number 121018 Document # D143725 1) ERG#171; ACT17854 WEA (02) 55DM 3) ERG#171; RC5562 WEA (05) 55DM 2) ERG#128; ACT3485 WEA (01) 55DM 4) ERG#133; ACT51807 WEA (03) CF 24 hour emergency contact: CHEMTREC 800-424-9300									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Officer's Printed/Typed Name ALVIN DORSEY				Signature <i>Alvin Dorsey</i>				Month Day Year 03/13/17	
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:									
17. Transporter Acknowledgment of Receipt of Materials									
Transporter 1 Printed/Typed Name Robert Hurd				Signature <i>Robert Hurd</i>				Month Day Year 03/13/17	
Transporter 2 Printed/Typed Name				Signature				Month Day Year	
18. Discrepancy									
18a. Discrepancy Indication Space ☒ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection									
18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number									
Facility's Phone:									
18c. Signature of Alternate Facility (or Generator)								Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1. H/K11		2. H/K11		3. H/K11		4. H/K11			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a									
Printed/Typed Name PAUL GUNSH				Signature <i>Paul Gunsh</i>				Month Day Year 03/12/17	

Appendix D

Survey Data

Bore Hole Coordinates and Elevation Summary, Marathon Petroleum Company Gallup Refinery, McKinley County, New Mexico

Bore Hole	Northing	Easting	Elevation
NDD-10	1635765.48	2546031.06	6908.74
NDD-11	1635757.61	2546024.94	6908.54
NDD-12	1635747.93	2546018.74	6910.72
NDD-13	1635872.71	2545854.34	6905.14
NDD-14	1635858.65	2545847.68	6904.11
NDD-17	1635917.01	2545737.01	6903.49
NDD-15	1635844.18	2545841.55	6905.27
NDD-7	1635691.31	2546173.94	6911.38
NDD-8	1635677.68	2546167.50	6910.42
NDD-9	1635667.33	2546160.89	6912.09
NDD-5	1635583.59	2546416.63	6913.91
NDD-4	1635587.65	2546592.33	6914.38
NDD-6	1635617.26	2546257.76	6912.97



Kyle Spolar
Kyle Spolar, N.M.P.S. Lic. No. 22763

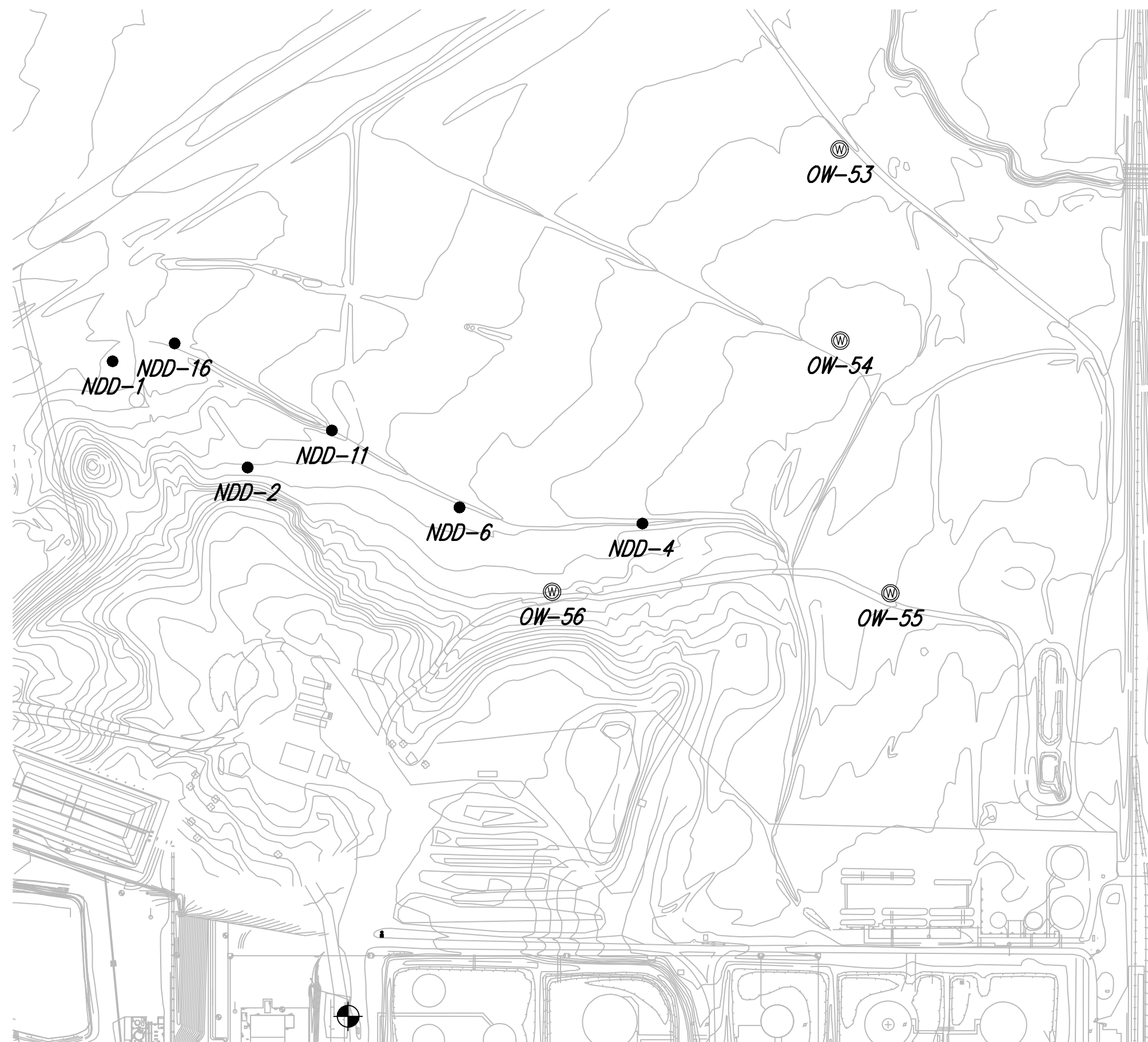
5-3-19
Date

- 1) The horizontal position is NAD 83 datum referenced to the New Mexico State Plane West Zone coordinates and the vertical positions are NAVD 88.
- 2) NDD-16 no evidence was found for the subject Bore Hole during the filed survey.
- 3) NDD-4 & NDD-6 in the above list are depicted per found wood markers in the area of said Bore Holes. No verifying marking depicting NDD-4 & NDD-6 were found during survey. Caution should be used as the locations may be incorrect and are only corresponding to the location shown on the given Aerial (Google Map) map.

May 2019

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

[illegible]



GIANT CP-3

N: 3583.22 / 1634400.30895
W: 2053.28 / 2545536.50504
Z: 207.81
PLANT 200'-0" = NGVD29: 6904.48 (+6704.48+7.81)
= 6912.29 NGVD29 + 3.37 VERTCON = 6915.66 NAVD88

GIANT CP-2

PLANT ELEV = 234.85
NGVD29 ELEV = 6939.35
NAVD88 ELEV = 6942.72
BC MONUMENT
NE CNR CONC PAD



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
Clyde J. King, PS13979

8-8-14
Date

OW-53

N: 1636271.72 CENTER OF METAL LID
E: 2546952.45
Z: 6914.74 TOP CENTER OF METAL LID
Z: 6914.38 N. TOP OF PVC PIPE
Z: 6911.93 S. TOP OF CONCRETE PAD

OW-54

N: 1635922.19 CENTER OF METAL LID
E: 2546953.94
Z: 6919.34 TOP CENTER OF METAL LID
Z: 6918.92 N. TOP OF PVC PIPE
Z: 6916.36 S. TOP OF CONCRETE PAD

OW-55

N: 1635460.37 CENTER OF METAL LID
E: 2547045.34
Z: 6923.66 TOP CENTER OF METAL LID
Z: 6923.25 N. TOP OF PVC PIPE
Z: 6921.01 S. TOP OF CONCRETE PAD

OW-56

N: 1635463.15 CENTER OF METAL LID
E: 2546427.02
Z: 6920.67 TOP CENTER OF METAL LID
Z: 6920.18 N. TOP OF PVC PIPE
Z: 6917.79 S. TOP OF CONCRETE PAD

NDD-1

N: 1635884.14
E: 2545623.67
Z: 6900.20 GROUND SURFACE

NDD-2

N: 1635689.96
E: 2545870.43
Z: 6912.08 GROUND SURFACE

NDD-4

N: 1635587.47
E: 2546592.11
Z: 6913.02 GROUND SURFACE

NDD-6

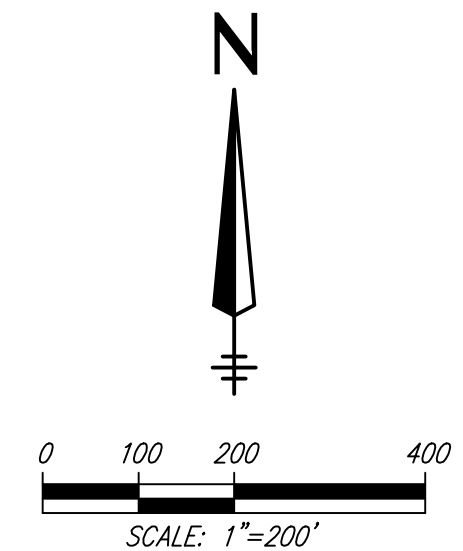
N: 1635616.91
E: 2546257.84
Z: 6911.68 GROUND SURFACE

NDD-11

N: 1635757.60
E: 2546024.53
Z: 6907.18 GROUND SURFACE

NDD-16

N: 1635916.92
E: 2545737.03
Z: 6902.29 GROUND SURFACE



SYMBOLS LEGEND

- ⊕ MONITORING WELL
- SOIL BORE

NOTES

- 1 FIELD SURVEY PERFORMED JULY 27, 2016, 9:00 a.m. to 12:00 p.m.
- 2 FIELD MEASUREMENTS PERFORMED UTILIZING TOPCON 'GR-3' BASE AND ROVER G.P.S. SYSTEM WHICH CAN NOT BE CALIBRATED. INSIDE AND OUTSIDE APPURTENANT MEASUREMENTS PERFORMED WITH STEEL TAPE.
- 3 THE BORE SITES WERE IDENTIFIED BY REFINERY 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).

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



PROFESSIONAL LAND SURVEYING SERVICES
P. O. Box 770 ■ Ramah, NM 87321 ■ Tel: (505) 870-6901 ■ HESurveys@yahoo.com

OW-53

Lat: N035° 29' 44.58836897" Long: W108° 25' 30.34317033"

OW-54

Lat: N035° 29' 41.13154108" Long: W108° 25' 30.29980068"

OW-55

Lat: N035° 29' 36.56947446" Long: W108° 25' 29.16097436"

OW-56

Lat: N035° 29' 36.56025249" Long: W108° 25' 36.63874865"

NDD-1

Lat: N035° 29' 40.67602252" Long: W108° 25' 46.38471367"

NDD-2

Lat: N035° 29' 38.77028319" Long: W108° 25' 43.38634410"

NDD-4

Lat: N035° 29' 37.79961618" Long: W108° 25' 34.65128875"

NDD-6

Lat: N035° 29' 38.07089847" Long: W108° 25' 38.69589922"

NDD-11

Lat: N035° 29' 39.44844682" Long: W108° 25' 41.52767382"

NDD-16

Lat: N035° 29' 41.00699462" Long: W108° 25' 45.01618450"

Giant CP-3

Lat: N035° 29' 25.99545539" Long: W108° 25' 47.33037772"

Appendix E
Permeability and Hydraulic Conductivity
Evaluations

APPENDIX C – DISCHARGE PLAN APPLICATION
GIANT REFINING COMPANY
CINIZA REFINERY

November 21, 1985

APPENDIX C
AQUIFER-TEST DATA AND ANALYSES

REPORT
TEST PUMPING OF
CHINLE SHALE

METHODOLOGY AND DESCRIPTION OF THE TEST

The test consisted of a 5 hour pumping period and a 2 hour recovery period. An air-driven piston pump capable of sustaining pumping rates as low as 10 gallons/hour (0.167 gpm) was used for the test. Water level measurements were taken with an electronic sounder. The well (OW-24) is located approximately 250 feet northwest of the land treatment facility and is completed within the Chinle shale. The lithologic and completion log of the well is attached (Figure F-2).

Pumping began at 1515 hours on February 20, 1985 at a rate of 10 gallons/hour. The produced water was very turbid. Clogging of the pump and pump lines necessitated continuous monitoring and adjustment of the discharge.

After 4 hours of pumping at 10 gallons/hour, the drawdown of the well appeared to stabilize at about 7 feet. The discharge rate was increased to 20 gallons/hour in order to more effectively stress the aquitard. After one hour of additional pumping a total drawdown of 12 feet was observed. However, this higher pumping rate increased the turbidity of the discharge and caused instability of the pumping rate. The lack of control of the discharge rate and the potential of damage to the pump forced the termination of the test after a total of 5 hours of pumping.

Water level recovery was observed for 100 minutes. At this time the water level had recovered to within 90% of the pre-pumping level.

TABLE F-1

Pump Test Data, OW-24

PUMP TEST ANALYSIS

Field measurements are summarized in Table F-1. Due to the short pumping time and potential well-bore and gravel-pack effects, the final analysis was based on methods developed by Shafer, for low-conductivity materials.

Partial penetration effects were neglected in the analysis because the low pumping rates and the expected anisotropy of the aquitard would prevent significant vertical flow to the well bore. The low pumping rate was also designed to completely drain the gravel pack in the well to insure accurate recovery data.

A copy of Shafer's methodology is attached, and the data for his analysis is given in Table F-2. Figure F-1 is a plot of the recovery data, according to Shafer's methods. This Figure includes calculation of T and K for the Chinle shales.

$$TD = 58' - 4" = 56.33'$$

$$Q = 31.76$$

PUMPING DATA

Page 1 of 2

Pump # 55 26.37' of water

≈ 18 gal

DATA SHEET FOR RECORDING PUMP TEST DATA

County: McKinley Co.

Observation well no.

Location: Cimiza Refinery 2/2/85

Pumped well no. OW-24

Average Q = 31.76 gpm r = 1.2 ft. r² =

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	gph (gpm)	Remarks
2-20	1515	0			31'-11.5"	0	Feet		40 gph	STATIC LEVEL W/ PUMP
	1516	1			33-0	12.5	1.04		10 gph	LARGE INITIAL LOSS
	1517	2			33-1	13.5	1.13			SET HOSE FILL 1.5"
	1518	3			33-4	16.5	1.38			Setting pump rate
	1519	4			33-8 1/4	20.75	1.73			
	1520	5			33-11 1/2	24.0	2.0			
	1521	6			34-2	26.5	2.22			
	1522	7			34-2 1/2	27.0	2.25			
1 min	1523	8			34-3	27.5	2.27			
	1524	9			34-4	28.5	2.37			
	1525	10			34-5	29.5	2.46			
	1527	12			34-7 1/4	30.75	2.56			
	1529	14			34-9	33.5	2.79			
2 min	1531	16			35-0	36.5	3.04			
	1533	18			35-2 1/4	38.75	3.23			
	1535	20			35-4 1/2	41.0	3.42			
	1540	25			35-10 1/2	47.0	3.92			
	1545	30			36-3	51.5	4.28			
	1550	35			36-2 1/2	51.0	4.25			
5 min	1555	40			36-8	56.5	4.71		10 gph	CLEARED PUMP Valve
	1600	45			37-2 1/4	62.75	5.23			
	1605	50			36-1 1/2	61.0	5.08			clear pump valve
	1610	55			N.R.	70.75				
	1615	60			37-10 1/4	82.75	5.90			Pumped 10 gal
10 min	1625	70			38-7 1/2	85.0	6.08			

PUMPING DATA

Page 2 of 2

DATA SHEET FOR RECORDING PUMP TEST DATA

County: _____

Observation well no. MW-24

Location: Ciniga Refinery

Pumped well no. MW-24

Average O 10 gph $q =$ _____ $q_c =$ _____

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s // (unad-justed)	Adjust-ment As	s' (ad-justed)	gph	Remarks
2-20	16:35	80			39-3 1/2	78	6.33		10	
	16:45	90			38-7	79.5	6.79			Lift pump to 50'
	16:55	100			37-8 1/2	84.0	5.75			Clear pump, ready
	17:05	110			38-1 1/2	94.0	7.00			resting
2 hours	17:15	120			39-2 1/2		7.27			Pumped 20 gal
	17:30	135			38-11		6.97			
	17:45	150			39-2 1/2		7.25			
15 min	18:00	165			39-0 1/2		7.08			
	18:15	180			39-2		7.21			Pumped 30 gal
	18:30	195			39-5		7.46			
34	18:45	210			39-5		7.46			
	19:00	225			39-2		7.21			
	19:15	240			38-1 1/2		7.00			Pumped 40 gal
44	19:30	255			39-0		7.04		10	
	19:32	257			39-4		7.38		20	INCREASE PUMP RATE TO 30 GPH
	19:34	259			39-10		7.87			PUMP SLIPPED APPROX 1 FOOT - REPLACED TO APPROX SAME LEVEL
2 min	19:36	261			40-3 1/2		8.33			
	19:38	263			40-3 1/2		8.33			
	19:40	265			40-1 1/2		8.17			PUMPING RATE RELL-OFF SLIGHTLY
5 min	19:45	270			40-9		8.79			
	19:50	275			41-9 1/2		9.83			
	19:55	280			42-0		10.04			
15 min	20:00	285			41-8		9.72			
	20:05	290			42-8 1/2		9.75			
	20:10	295			43-4		11.27			Silt in Pump
5 min	20:15	300			43-2 1/2		11.25			Adj pump valve
	20:30	315			43-10 1/2		11.92			pumped 10 gal

[Signature]

RECOVERY DATA

Page 1 of 1

DATA SHEET FOR RECORDING PUMP TEST DATA

County: Craig Refining

Location: Craig Refining

Observation well no.

Pumped well no. 100-24

Average O ft. r = ft. r² =

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
7/20	20:32		0		43-11"	144"	12.0'	0	20 gph	
	20:34		2		42-7"		10.63'	1.37		
	20:36		4		41-8 3/4"		9.69	2.31		
	20:38		6		40-10 1/4"		8.86	3.14		
	20:40		8		40-2"		8.21	3.79		
	20:42		10		39-6 1/4"		7.56	4.44		
	20:47		15		38-0 3/4"		6.11	5.81		
	20:52		20		37-1 1/2"		5.17	6.83		
	20:57		25		36'-4"		4.38	7.62		
	21:02		30		35-8 1/2"		3.75	8.25		
	21:07		35		35-2 1/4"		3.27	8.73		
	21:12		40		34-9 1/4"		2.86	9.14		
	21:17		45		34-5 3/4"		2.52	9.48		
	21:22		50		34-3 3/4"		2.27	9.73		
	21:27		55		34-0 1/2"		2.07	9.93		
	21:32		60		33-10 1/2"		1.92	10.08		
	21:42		70		33-7 1/2"		1.66	10.34		
	21:52		80		33-5 3/4"		1.57	10.49		
	22:02		90		33-4 1/2"		1.42	10.58		
	22:12		100		33-3 3/4"		1.32	10.68		
	22:22		110							
	22:32		120							
	22:47		135							
	23:02		150							
	23:17		165							

TABLE F-2

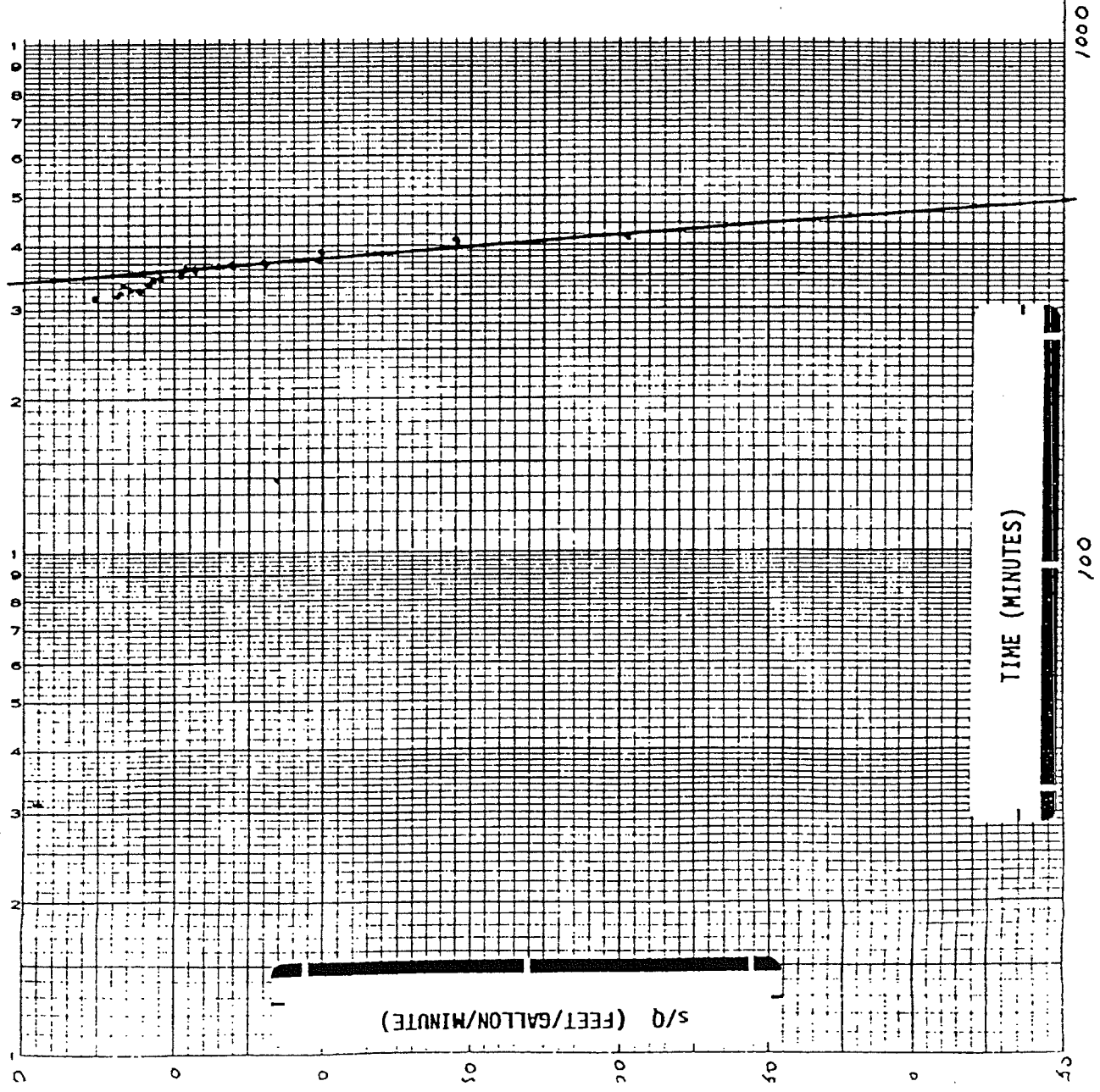
DATA FOR SHAFER'S METHOD

Time Since Pumping Started (min)	Drawdown (feet) (s)	Feet of Casing Filled (ft)	Time To Fill (min)	Q (gpm)	S/Q (ft/gpm)
317	12.0	0	0	---	---
319	10.63	1.37	2	.45	23.8
321	9.69	.94	2	.31	31.6
323	8.86	.83	2	.27	32.7
325	8.21	.65	2	.21	38.7
327	7.56	.65	2	.21	35.6
332	6.11	1.45	5	.19	32.3
337	5.17	.94	5	.13	42.1
342	4.38	.79	5	.10	42.5
347	3.75	.63	5	.08	45.6
352	3.27	.48	5	.06	52.2
357	2.86	.41	5	.05	53.4
362	2.52	.34	5	.04	56.8
367	2.27	.25	5	.03	69.5
372	2.07	.20	5	.026	79.3
377	1.92	.15	5	.019	98.0
387	1.66	.26	10	.017	97.8
397	1.51	.15	10	.009	154
407	1.42	.15	10	.009	145
417	1.32	.10	10	.006	202

FIGURE F-1
 SHAFER PLOT OF DATA FROM OW-24

Calculation of T & K

- 1) Over the total vertical scale of 350 feet/GPM, time varies by 0.1567 log cycles
- 2) For 1 full log cycle, s/Q equals $350 / 0.1567 = 2233$
- 3) $T = 264 / (s/Q) = 264 / 2233$
or $T = 0.110$ gallons/day/foot
- 4) For a 20 foot screened interval
 $K = T/b = 0.0055$ gallons/day/square foot.
- 5) $.0055 \text{ g/d/ft} \times 1.55 \times 10^{-6} \text{ (ft/sec)/(g/d/ft)}$
 $= 8.3 \times 10^{-9} \text{ ft/sec}$



BO. LG OW-24

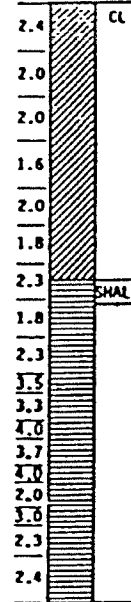
SURFACE ELEVATION: 6676 FEET

DEPTH IN FEET	LABORATORY TEST DATA							
	TESTS REPORTED ELSEWHERE	ATTERBERG LIMITS		STRENGTH TEST DATA				DRY DENSITY (PCF)
		LIQUID LIMIT (%)	PLASTICITY INDEX (%)	TYPE OF TEST	UNIAXIAL OR CONFINING PRESSURE (PSF)	SHEAR STRENGTH (PSF)	DEVIATOR STRESS (PSF)	
0								
10								
20								
30								
40								
50								
60								
70								
80								
90								
100								
110								
120								
130								
140								
150								
160								

PENETRATION RATE
MINUTES/FOOT

SYMBOLS

DESCRIPTION



CL TRIASSIC PERIOD
CHIMEE FORMATION
REDDISH BROWN, VERY FINE SANDY CLAY, SOFT, HIGHLY WEATHERED

30 FEET: SHALE, REDDISH BROWN, SANDY, SOFT, FRESH

BORING COMPLETED AT 65.0 FEET ON 1/2/81.
4-INCH PVC PIEZOMETER INSTALLED WITH PERFORATIONS FROM 41.0 TO 61.0 FEET.
GRAVEL PLACED FROM 28.0 TO 61.0 FEET AND BORING SEALED WITH BENTONITE AND CEMENT TO SURFACE.
GROUND WATER LEVEL MEASURED AT 32.5 FEET BELOW GROUND ON 1/5/81.

FIGURE 'F'-2
LOG OF WELL OW-24

LOG OF BORINGS

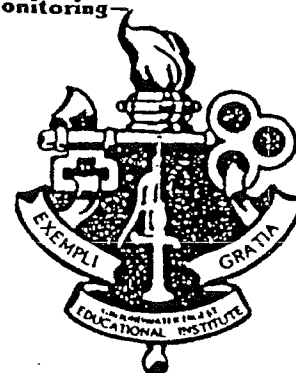
Pumping Test Analyses for Low Yield Formations

by David C. Shafer

Occasionally it is necessary to determine aquifer characteristics of very low yielding formations—those with transmissivities less than 500 gallons per day per foot. Though interest in these aquifers is certainly not because of their productive capability, it may be desirable to determine groundwater flow characteristics even in these low yield formations in order to determine such things as regional groundwater flow patterns, effect of dewatering or migration of pollution plumes near point sources of contamination.

Different Approach

Conventional pumping test analysis using the standard time drawdown graph often does not work effectively in low T (transmissivity) formations for two reasons. First, the pumped well's low specific capacity (gallons per minute per foot of drawdown) may cause the pump to break suction during the test and it may be impractical to throttle back the pumping rate sufficiently to prevent this. Second, even if a constant pumping rate can be maintained without breaking suction, most of the data obtained will probably reflect casing storage effects rather than true aquifer parameters (see "Casing Storage Can Affect Pumping Test Data,"



William F. Achuff
Director

Jan-Feb. 1978, Johnson Drillers Journal). Thus a different approach is required.

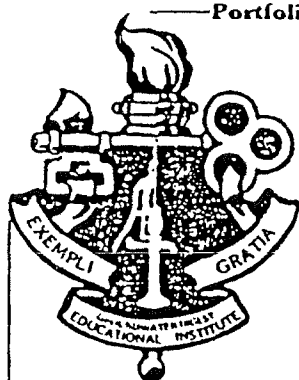
The best method for analyzing these formations is to pump a substantial portion of the casing empty, then shut the pump off and measure water levels as they recover. In ordinary pumping tests these measurements correspond to the non-pumping portion of the test. However, in the low T formations this "recovery period" is actually the "pumping period!"

After pump shut-off, the casing slowly begins filling with water. This water comes from the aquifer and actually represents the water pumped during this so called "pumping period." The pumping rate is determined by measuring the volume of

Pumping rate = 10 gpm
Pumping period = 15 minutes
Drawdown at pump shut off = 90 ft
Casing — 6" I.D.
Drop pipe — 1 1/4" I.D.

Time in minutes since pumping started (t)	Drawdown in feet (s)	Number of feet of casing filled	Time in minutes required to fill	Volume filled divided by time required in gallons per minute (Q)	s/Q in feet per gallon per minute
15 (pump shut off)	90				
17	85.66	4.34	2	3.04	28.2
20	79.7	5.96	3	2.78	28.6
30	64.2	15.5	10	2.17	29.5
40	51.9	12.3	10	1.72	30.2
60	35.6	13.3	20	1.14	31.1
80	24.6	11.0	20	.77	31.8

Table 1



casing filled in a given length of time.

During the test, careful measurements are made of time since pumping began (t) along with drawdown (s) at each of these times. Then a calculation is made to determine Q for each time t and finally the ratio s/Q is computed for each measured drawdown value. The ratio is simply the reciprocal of the specific capacity.

A graph is then constructed showing t versus the ratio s/Q plotted as usual on semi-logarithmic graph paper with t on the log scale. A straight line of best fit is drawn through the data points and T is calculated as follows:

$$T = \frac{264}{\Delta(s/Q)}$$

where $\Delta(s/Q)$ is the change in s/Q

over one log cycle of graph paper.

This graph has the unique advantage that it will accurately reflect aquifer transmissivity independent of casing storage effects. In addition it will be sensitive to nearby recharge and/or negative boundaries and will reveal these conditions like any ordinary time drawdown graph.

To see how this technique works it is best to work an example. Table 1 shows data obtained from a 6-inch well pumped at 10 gpm for 15 minutes. Drawdown after 15 minutes of pumping measured 90 feet.

The next data point was recorded two minutes following pump shut-off or 17 minutes since pumping started. At this time the pumping water level was 85.66 feet, indicating that 4.34 feet of casing had filled during the two minute interval.

The annulus between the 6-inch casing and 1½" drop pipe holds 1.4 gallons per foot so that the volume of casing filled is 1.4 times 4.34, or 6.08 gallons in two minutes. Thus,

$$Q = 6.08 \text{ gallons}/2 \text{ minutes} = 3.04 \text{ gpm}$$

finally,

$$s/Q = 85.66 \text{ ft}/3.04 \text{ gpm} = 28.2 \text{ ft/gpm}$$

which is plotted at a time of 17 minutes on the graph shown here.

This analysis is repeated for each

drawdown measurement. The resultant calculated s/Q values are shown in the table and plotted in the figure. The formation T value from the graph is

$$T = \frac{264}{\Delta(s/Q)} = \frac{264}{5.3} = 49 \text{ gpd/ft}$$

Conventional Analysis

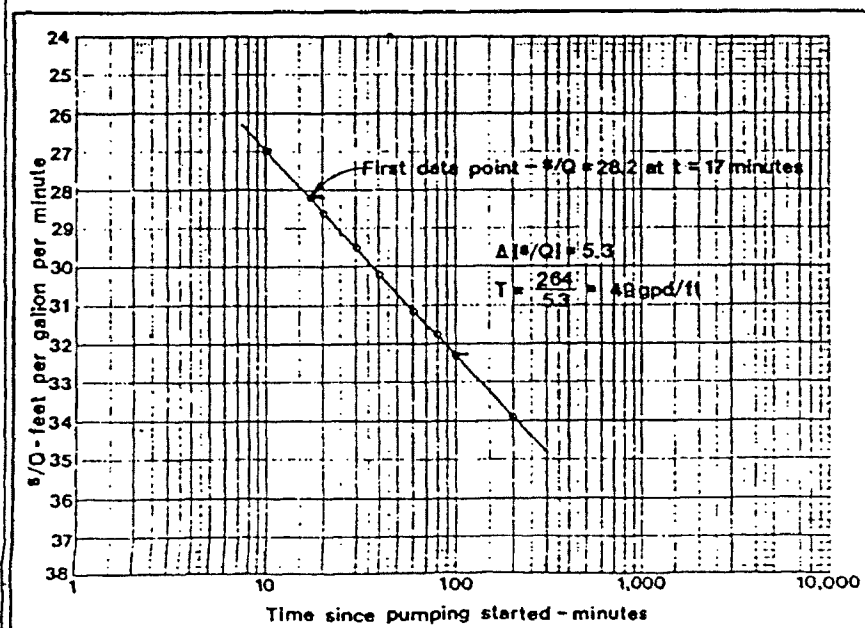
Examination of the hydraulic characteristics of this well (not including the drawdown graph had been used to casing storage effects) would have lasted for approximately twelve hours. This means that data recorded in the first twelve hours of pumping would have been useless and longer pumping than this would have been required to obtain any usable data at all. However, data collected after twelve hours of pumping probably would be more influenced by boundary conditions than by aquifer transmissivity. Thus, in practice, perfectly might have been impossible to determine the T value using conventional analysis techniques regardless of the length of the test. The value of the method described above becomes very clear; it may be the only way to determine T values in certain low yielding aquifers.

In order to maximize the accuracy of this method, it is best to unload (empty) the casing as rapidly as possible. Thus it is actually better to use a high capacity pump than a low capacity pump in analyzing extremely low-yielding wells!

Another good idea is to unload the casing with compressed air since this can typically be done in one minute or less.

Recorded Data Must Be Accurate

An additional important consideration is that all data recorded for this type of analysis must be absolutely accurate. Small errors in the recorded values of time and/or drawdown can result in large errors in the calculated values of s/Q. For best results, drawdown should be recorded to the nearest hundredth of a foot and timed to the nearest second or two.



In low transmissivity situations, readings are taken after pump shut-off. In this method, s/Q is the reciprocal of the specific capacity and t is time, measured after shut-off as water begins to enter the casing.

JOHN W. SHOMAKER
CONSULTING GEOLOGIST
3236 CANDELARIA, N.E.
ALBUQUERQUE, NEW MEXICO 87107

(505) 884-2897

September 20, 1984

RECEIVED SEP 24 1984

Carl D. Shook, Plant Manager
Giant Refining Company, Ciniza Refinery
Route 3, Box 7
Gallup, New Mexico 87301

Re: results of permeability tests, July 2 and 3, 1984

Dear Carl:

Copies of the field notes, calculations, and data plots for the two permeability tests are attached. The tests are summarized as follows:

Well OW-4 The well is completed principally in the clay and shale sequence which overlies the uppermost aquifer; a small thickness of sandstone which may be part of the uppermost aquifer was also penetrated. Total depth when drilled was 102.0 ft. Perforations are from 62.0 ft to 102 ft. The well is located near the center of the land-treatment area. A slug test was performed on July 3, 1984, following the method described by S. W. Lohman (1972, Ground-Water Hydraulics, U. S. Geol. Survey Prof. Paper 708, p. 27-29), which indicates the permeability of the section open to the well to be about 4×10^{-7} cm/sec.

Well MW-1 This well is one of the monitoring wells on the boundary of the land-treatment area, and is completed in the uppermost aquifer. It was drilled to 120 ft, and is screened in the interval 87 to 120 ft; the casing is sealed above 89 ft so as to isolate the uppermost aquifer. The slug test performed on July 3, 1984 indicated a permeability of about 1.2×10^{-4} cm/sec.

Information as to the construction of the wells is taken from Dames and Moore (March, 1981; Ground water and soils investigation, Ciniza Refinery near Gallup, New Mexico, and November, 1981, Ground-water monitoring plan, Ciniza Refinery near Gallup, New Mexico).

Please let me know if there are questions.

Sincerely,

John W. Shomaker
Consulting Geologist

cc: Tom Andrews, Delta H Engineering, W/anal

WC 11: 71011-110124 ow-4
date: 7-3-84

casing size: nominal 4 1/2" ID 4.0 csg. matl. PVC
water levels measured from top 4 1/2 OD PVC casing, 5 side
which is 1.7 ± above ground level.
volume of slug:

$OD, f \left(\frac{0.27}{0.30} \times \frac{1}{2} \right)^2 \times \pi \times \text{length}, f$

<u>0.10</u>	<u>0.006</u>	f^3
<u>0.04</u>	<u>0.003</u>	
<u>4.84</u>	<u>0.224</u>	
<u>0.26</u>	<u>0.015</u>	
<u>4.81</u>	<u>0.123</u>	
<u>0.26</u>	<u>0.015</u>	
<u>0.03</u>	<u>0.001</u>	
<u>0.25</u>	<u>0.002</u>	
<u> </u>	<u> </u>	

Note - obstruction
in casing at 33.
won't pass 0.27
OD.

Sum $\frac{0.489}{1} = V, ft^3 = 3.66 \text{ gal.}$

r_p = internal radius of casing above perfs: 0.165 ft

r_s : radius of screen or open hole: _____ ft

initial water level 26.15 ft below mp, time 07:51

$$H_0 = \frac{V}{\pi n_c^2} = \frac{0.489}{\pi (0.165)^2} = 5.72 \text{ ft}$$

clock time	$t, \text{sec.}$	water level	H	H/H_0	remarks
08:20:54	0				slug released top slug: 23.2' MP
21:25?	31 ^F	20.75	5.40	0.944	
22:28	94	20.76	5.39	0.942	
23:14	140	20.80	5.35	0.935	
23:51	177	20.81	5.34	0.934	
24:42	228	20.83	5.32	0.930	
25:42	288	20.87	5.28	0.923	
27:06	372	20.90	5.25	0.918	
28:14	440	20.92	5.23	0.914	
29:43	529	20.95	5.20	0.909	
30:55	601	20.97	5.18	0.906	
32:46	712	21.00	5.15	0.900	
35:16	862	21.04	5.11	0.893	
38:38	1064	21.10	5.05	0.883	
43:20	1356	21.19	4.96	0.867	
46:52	1558	21.21	4.94	0.864	raised slug 0.4 ft.
49:26	1712	21.25	4.90	0.857	
52:54	1920	21.30	4.85	0.848	

<u>clock time</u>	<u>t_{osc}</u>	<u>level</u>	<u>H</u>	<u>H/H₀</u>	<u>remarks</u>
$t_0 = 08:20:54$					
~~08:54:13~~		~~21.34~~			
08:56:50	2096	21.35	4.80	0.839	
09:00:16	2362	21.39	4.76	0.832	
09:05:00	2646	21.45	4.70	0.822	
09:55	2941	21.50	4.65	0.813	
17:46	3412	21.60	4.55	0.795	
28:25	4051	21.71	4.44	0.776	m-scope trouble
46:00	5106	21.89	4.26	0.745	
10:02:23	6089	22.05	4.10	0.717	
14:00	6786	22.15	4.00	0.699	
10:24:20	7412	22.25	3.90	0.682	stopped test;
					slug almost un-
					covered

late data matches: $\alpha = 10^{-1}$ curve, $Tt/n_c^2 = 1$ at $t = 50,000$ sec.

$$T = \frac{1.0 \text{ } \mu\text{s}}{t} = \frac{(1.0)(0.165)}{50,000} = 5.4 \times 10^{-7} \text{ ft}^2/\text{sec}$$

$$= 0.05 \text{ ft}^2/\text{day} = 0.35 \text{ gpd/ft}$$

$$K_h = \frac{0.05 \text{ ft}^2/\text{day}}{40 \text{ ft screen}} = 0.001 \text{ ft}/\text{day}$$

$$0.001 \text{ ft/day} \times 30.5 \text{ cm/ft} \times \frac{1}{60 \times 1440} \frac{\text{day}}{\text{sec}} = 4 \times 10^{-7} \text{ cm/sec}$$

$S = \frac{2}{10} \approx 0.02$	$10^{-1} = 0.03$	$\therefore$ water-table storage

L 674 "hole!"

HR. 24011110 RIETZEN GRAPH PAPER

MIL. C. 10 DIVISIONS PER INCH

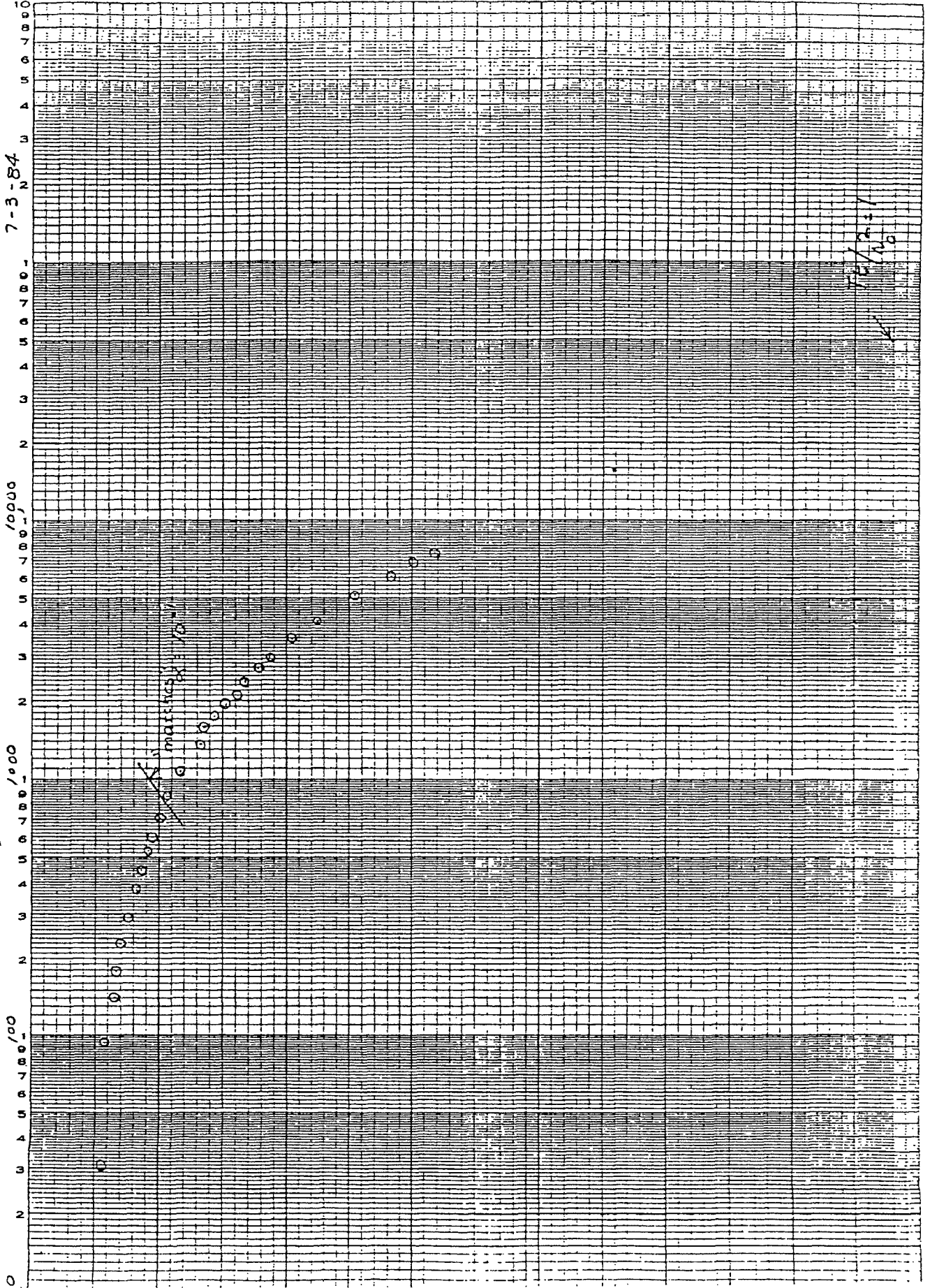
2, sec.

DIETZEN CORPORATION

U.S.

ow-4

7-3-84



7-3-84

date: 7-2-84

casing size: nominal $5\frac{1}{2}$ " OD, ID 5.1" csg. matl. PVC
 water levels measured from top PVC casing, SW side
 which is 1.37 ft above ground level, (concrete slab)
 volume of slug: 2.05

cap OD, ft	$\left(\frac{0.37}{2}\right)^2 \times \pi \times \text{length, ft}$	0.10	=	0.011 ft ³	1.37
0.39		0.05		0.006	
0.33		4.81		0.411	
0.38		0.28		0.032	
0.33		0.04		0.003	
0.42		0.04		0.006	
0.29		0.03		0.002	
0.16		0.03		0.001	
0.11		0.25		0.002	

sum 0.474 = V, ft³ = 3.55 gal

r_c = internal radius of casing above perms. 0.211 ft

r_s = radius of screen or open hole: _____ ft

initial water level 5.72 ft below mps, time 13:32

$$H_0 = \frac{V}{\pi r_c^2} = \frac{0.474}{\pi (0.211)^2} = 3.389 \text{ ft}$$

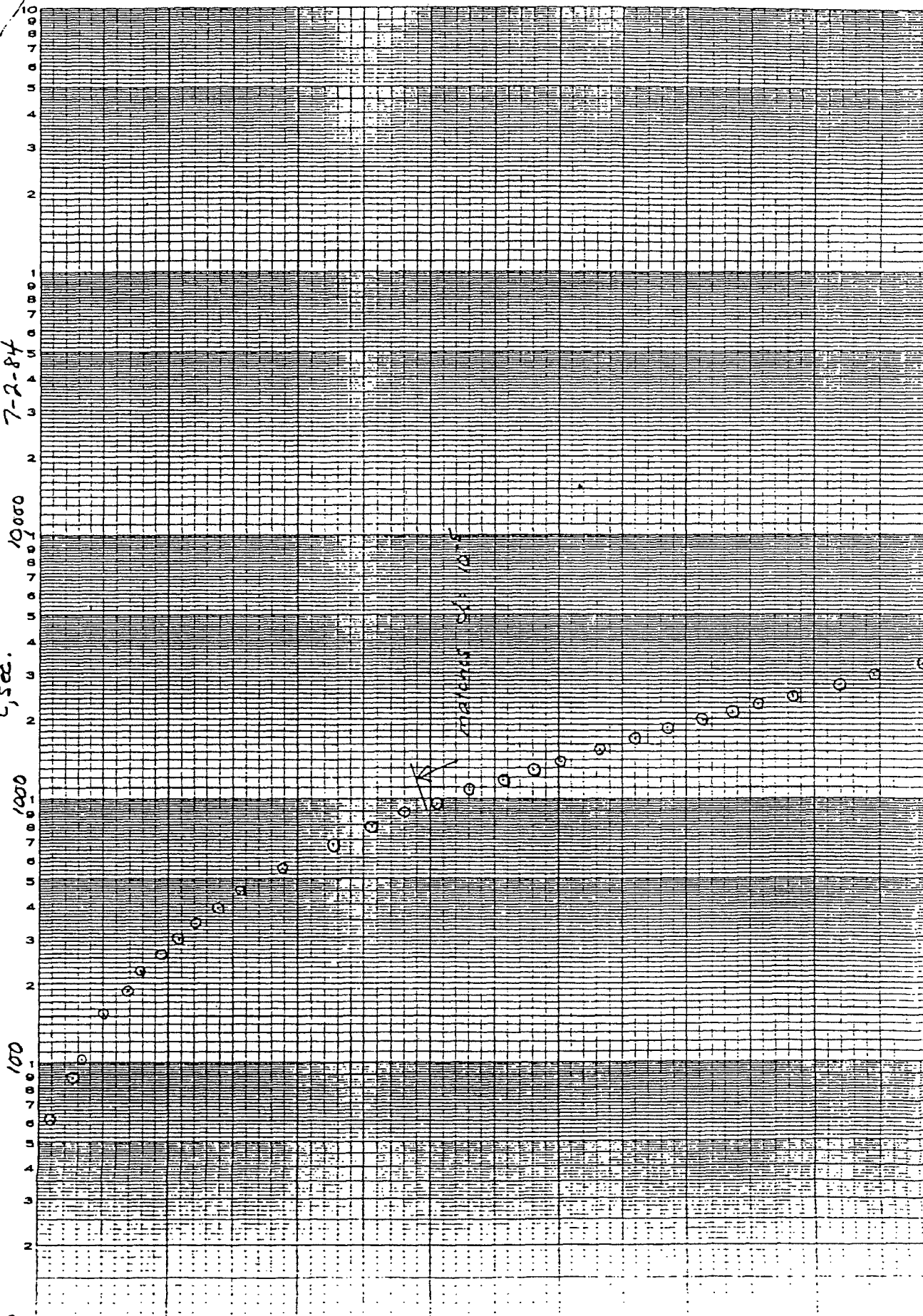
clock time	t, sec.	water level	H	H/H ₀	remarks
13:48:00	0				slug released
13:48:20	20	2.30 ft	3.42	1.009	??
49:00	60	2.36	3.36	0.991	
49:20	80	2.42	3.30	0.974	
49:52	112	2.44	3.28	0.968	
50:32	152	2.50	3.22	0.950	
51:05	185	2.56	3.16	0.932	
51:42	222	2.60	3.12	0.921	
52:19	259	2.65	3.07	0.906	
52:55	295	2.70	3.02	0.891	
53:33	333	2.74	2.98	0.879	
54:20	386	2.80	2.92	0.862	
55:30	450	2.86	2.86	0.844	
57:05	545	2.97	2.75	0.811	
59:12	672	3.10	2.62	0.773	
14:01:05	785	3.20	2.52	0.744	
02:25	868	3.28	2.44	0.720	
03:52	952	3.36	2.36	0.696	

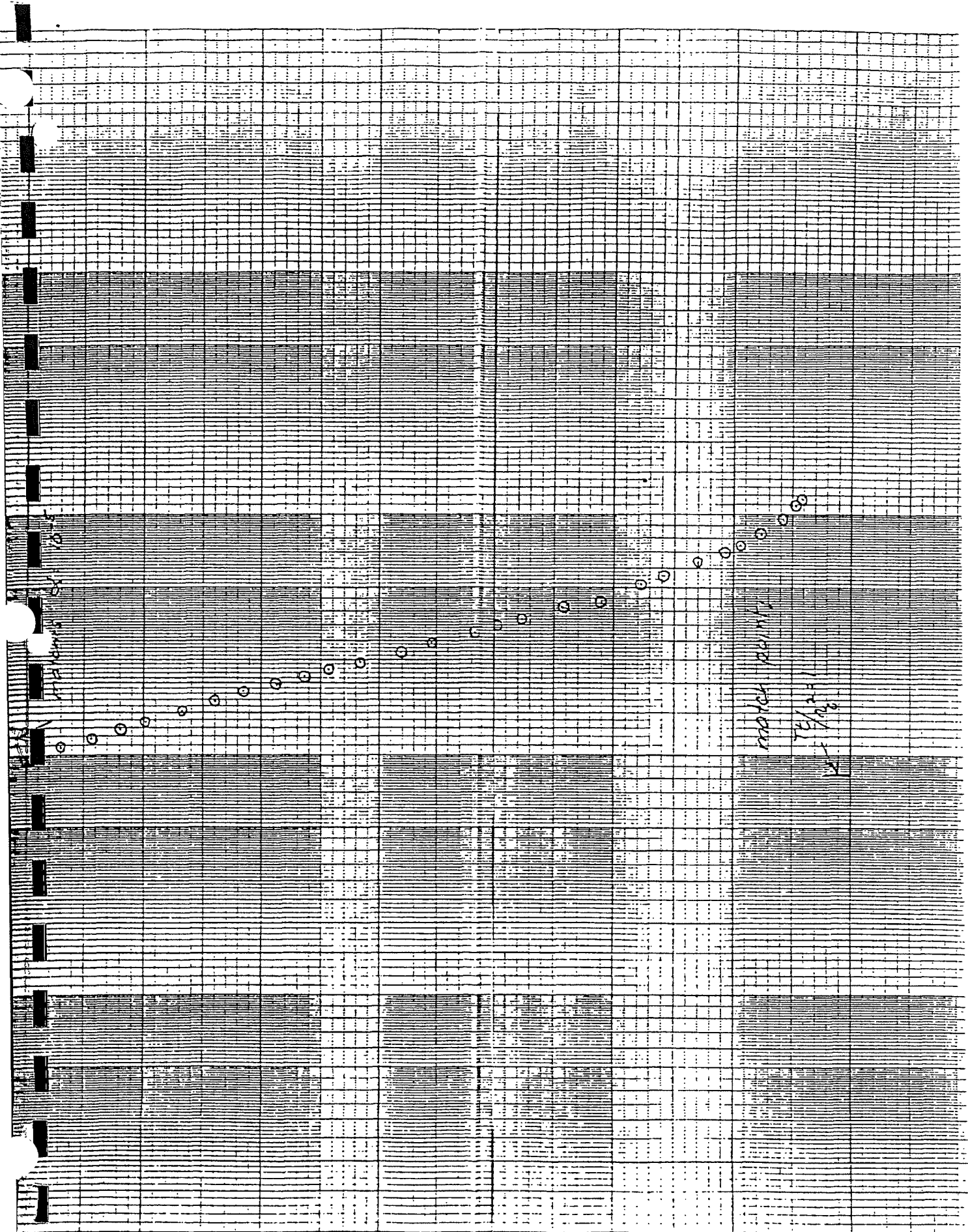
[illegible]

DIETZGEN CORPORATION
MADE IN U.S.A.

7,500.

mw-1
7-2-84





match point

$$\frac{7E}{12} = 1$$



APPENDIX C
RCRA POST-CLOSURE CARE PERMIT APPLICATION
LAND TREATMENT UNIT
GIANT REFINING COMPANY
CINIZA REFINERY

May 2000

*RCRA Part A and Part B
Post-Closure Permit Application
Land Treatment Unit
May 2000*

APPENDIX C

Land Treatment Unit Historical Information and Data

LAND TREATMENT UNIT HISTORICAL INFORMATION AND DATA

1.0 LAND TREATMENT HISTORY

Historical LTU information and data extracted from existing permit applications, operating permits, operating records, and other source documents are provided as Appendix C. The inclusion of this appendix does not imply that historical information and data have been verified.

In August 1980, Ciniza Refinery (Ciniza) notified the U.S. Environmental Protection Agency (EPA) that it was a generator and operator of a hazardous waste management facility. In November 1980, Ciniza submitted a Part A permit application as an "existing facility" (defined at 40 *Code of Federal Regulations* §260.10). This granted Ciniza interim status for their Land Treatment Unit (LTU) operations. In response to notice from the Regional Administrator, Ciniza submitted a Part B permit application in December 1983. Based on changing guidance, Ciniza submitted a land treatment demonstration plan (LTD) and an application for a two-phase LTD permit in April 1985. On February 9, 1987, Ciniza was issued a Short-term LTD Permit (NMD000333211-1) to conduct a hazardous waste land LTD. The LTD was conducted to identify the land treatment capabilities for refinery waste generated by Ciniza. The LTD defined waste management parameters (e.g., rate-limiting constituent, application-limiting constituent, capacity-limiting constituent, and unit life of the LTU). This was accomplished by identifying the Principal Hazardous Constituents (PHCs) present in refinery waste streams and measuring their degradation, transformation, and immobilization in the treatment zone of the LTU. From the results of the LTD and a modified Part B permit application, Ciniza was issued a Hazardous Waste Facility Permit (NMD 000333211-2) on November 4, 1988. Ciniza has not applied hazardous wastes to the LTU since November 8, 1990.

1.1 Land Treatment Program [20 NMAC 4.1, Subpart IX, §270.20(b)]

Ciniza's Hazardous Waste Facility Permit established operational requirements for the LTU. These requirements include procedural and engineering controls necessary to ensure that hazardous constituents are fully treated within the LTU without uncontrolled release to the environment.

The LTU consists of a treatment zone of soil extending 5 ft deep from the original soil surface. This depth is shallow enough to ensure that the treatment zone is more than 3 ft above the seasonal high water table. The zone of incorporation (ZOI) within the treatment zone is the volume of soil to which the waste was directly applied.

The ZOI for the Ciniza LTU is the top 12 in. of the treatment zone. The LTU was designed and constructed to prevent both washout of any hazardous waste and to prevent inundation of and discharge from the permitted unit through the use of a continuous dike which surrounds the LTU at an elevation of 3 ft above the natural grade.

The ZOI was tilled during permitted operations to encourage aerobic microbial activity and improve chemical reaction rates. During active treatment soil nutrients were applied, as necessary, to optimize carbon:nitrogen:phosphorous (C:N:P) ratios. Applications of Ciniza wastes to the LTU were limited to ensure that treatment processes were not overwhelmed or poisoned. Performance indicators (e.g., soil moisture, pH, total organic carbon) were monitored in the ZOI to ensure that treatment was proceeding.

1.2 Treatment Zone Description [20 NMAC 4.1, Subpart IX, §270.20(b)(2) and §270.20(b)(5)]

The LTU consists of three 480-by-240-ft sections, each of which contain 2.6 acres (1.0 hectares) of available treatment surface. Each section is delineated by a continuous dike to prevent site runoff and runoff. The treatment zone extends 5-ft deep from the top of the soil within the diked section. The top 12 in. of the treatment zone is the ZOI. The ZOI is tilled when active to encourage aerobic degradation of organics and to maintain moisture content of the soil. This leaves 4 ft of the treatment zone undisturbed.

The soil within the treatment zone is silty clay containing closely-spaced root systems in the uppermost 3 to 4 ft. Field infiltration rates (the rate at which water penetrates into the soil surface) averages 1.0×10^{-3} cm/sec or 3.6 cm/hr. Soil permeability as determined by laboratory measurements averages 1.9×10^{-5} cm/sec or 6.8×10^{-2} cm/hr for three locations at the 6- to 12-in. depth. Field infiltration rate allows prediction of runoff and erosion; permeability (hydraulic conductivity) allows estimation of vertical water movement rates in the soil. The treatment zone soils have a saturated hydraulic conductivity rating of "moderately low" by the U.S. Department of Agriculture Class (Giant Refining Company Part B Permit Application 1984). The low permeability of the treatment zone soil assists in retarding the vertical movement of hazardous constituents through the treatment zone.

The silty clay soil has a high cation exchange capacity (CEC). The CEC is the total amount of exchangeable cations that the soil has to exchange with cations in the soil solution. The exchangeable cations in the LTU are the heavy metals present in the Ciniza wastes. The high CEC results in high sorption of heavy metals in the LTU soils, assuming other factors (such as soil pH) are favorable.

RECENT SOIL PERMEABILITY TESTS
FIREWATER POND CONSTRUCTION PROJECT

Precision Engineering, Inc.

P.O. Box 422
Las Cruces, NM 88004
505-523-7674

Rigid Wall Hydraulic Conductivity
Falling Head

ATTN: James Romero
Giant Refining Company
Route 3, Box 7
Gallup, NM 87301

Project: Ciniza Fire Water Lagoon

File No: 05-100

Soil Type: Silty Clay

Date: October 13, 2005

Lab No: 47872

Sampled From: Boring 05-100-1(2.5'-3.0')

Performed By: GG

TEST SPECIMEN CONDITIONS AT BEGINING OF TEST:

Wet Unit Weight: 120.8 pcf

% Moisture: 10.8

Dry Unit Weight: 109.0 pcf

% Compaction: n/a

% Compaction Requested: n/a

PROCTOR INFORMATION:

Maximum Dry Density: n/a pcf

Optimum Moisture Content: n/a %

Coefficient of Permeability, k_{20} , 1.1×10^{-7} cm/sec. avg

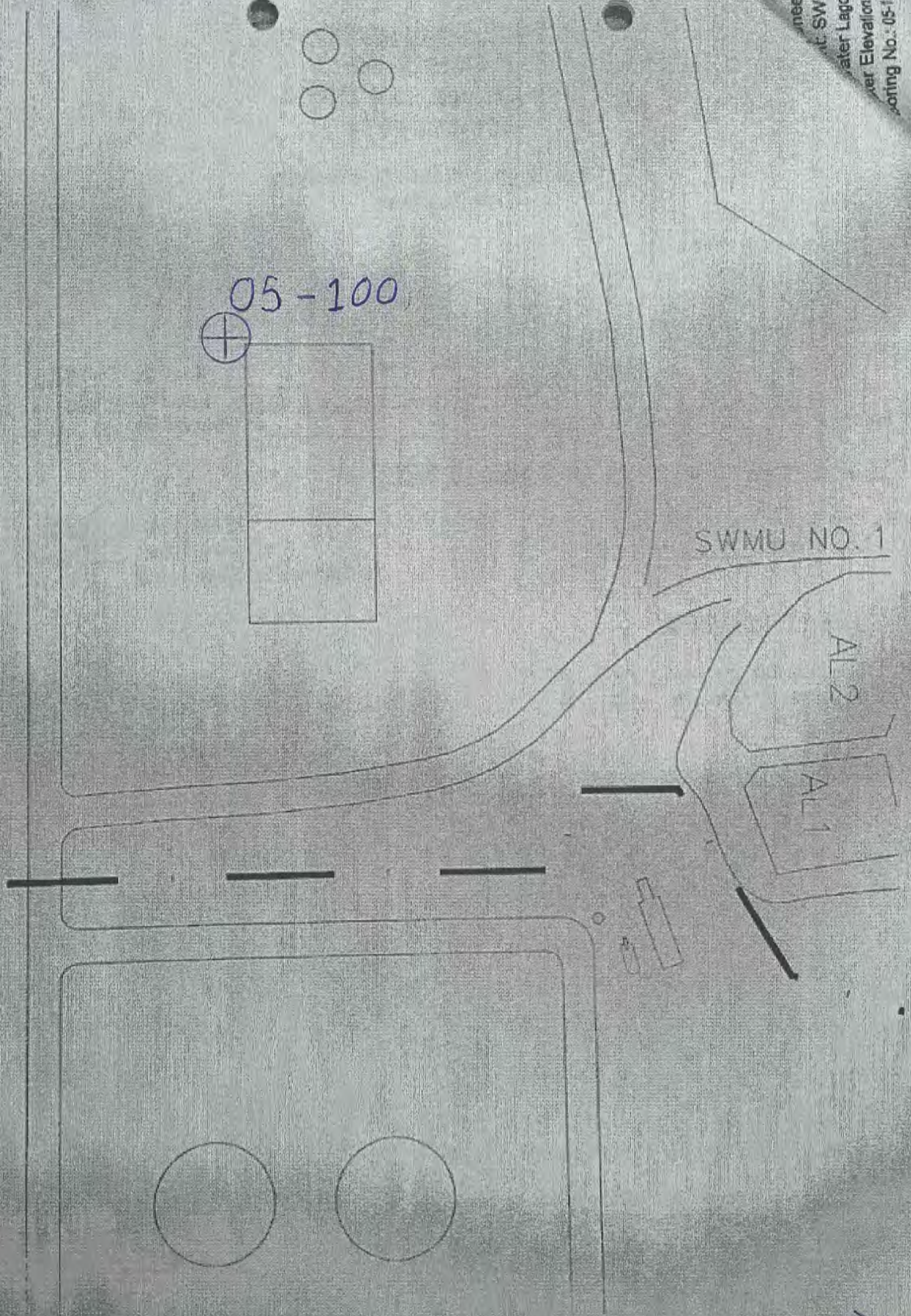
Remarks: Avg of three: 1.1×10^{-7} , 1.1×10^{-7} , 1.1×10^{-7}

C:\ball\Projects\2005\05100cinizafirewb\Permeability.xls\Report

Reviewed By:

Reviewed By:

Certified By:

Sheet: 107
Site: SW Cont
Water Lagoon
Water Elevation: 46.95
Soring No.: 05-100-1

LAB #	DEPTH	BLOW
		COUNT
	0.0-5.0	

SW Corner of Proposed
Lagoon
Elevation: -98.2 (TD, -27 @ 1 hr
No. 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant-Cinza

Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
47872	0.0-5.0				Clay, Very Silty, Sandy, Very Fine, Dark Red, Wet, Firm				
				2.5	(2.5-3.0 hydraulic conductivity sample)				
	5.0-10.0			5.0	Same As Above, Wet, Soft				
				7.5					
	10.0-15.0			10.0	Same As Above				
	15.0-16.0			15.0	Same As Above				
	16.0-17.5				Sand, Very Fine, Very Clayey, Very Silty, Weak Water Bearing, Moderately Dense, Dark Red/Brown				
	17.5-21.5			20.0	Clay, Dark Red, Wet, Soft				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER

LOGGED BY: WHK

Sheet: 2 OF 5
 Bore Point: SW Corner of Proposed
 Fire Water Lagoon
 Water Elevation:
 Boring No.: 05-100-1

Precision Engineering, Inc.
 P.O. Box 422
 Las Cruces, NM 88004
 505-623-7574

Elevation: EXISTING
 Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
	21.5-22.1				Clay, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				Clay, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1				Perforated Forest Formation Mudstone/Claystone, Weathered, Some Grey/Green Reduction Spots, Generally Red/ Brown, Friable to Crumbly, Damp/Moist				
	25.0-30.0			25.0	Mudstone, As Above, Few Reduction Spots, Damp/Dry				
	30.0-35.0			30.0	Same As Above dry				
	35.0-40.0			35.0	Same As Above dry				
	40.0-45.0			40.0	Same As Above, Brighter Red @ 44.5'-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense, bright red brown				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER

LOGGED BY: WHK

Sheet 2 OF 5

Bore Point: SW Corner of Proposed
Fire Water Lagoon
Water Elevation:
Boring No. 05-100-1

Precision Engineering, Inc.

P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #

Site #

Elevation: EXISTING

Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
	21.5-22.1				Clay, Sandy, Dark Brown, Wet, Stiff				
	22.1-23.5				Clay, Hard, Red/Brown (Brighter than Above), Wet/Moist				
	23.5-25.1				Perforated Forest Formation				
	25.0-30.0			25.0	Mudstone/Claystone, Weathered, Some Grey/Green Reduction Spots, Generally Red/ Brown, Flexible to Crumbly, Damp/Moist				
					Mudstone, As Above, Few Reduction Spots, Damp/Dry				
	30.0-35.0			30.0	Same As Above dry				
	35.0-40.0			35.0	Same As Above dry				
	40.0-45.0			40.0	Same As Above, Brighter Red @ 44.5-45.0', dry				
	41.5				siltstone/mudstone, dry, very dense, bright red brown				
SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER									
LOGGED BY: WHK									

C:\bill\Projects\2005\05100Cruzafirewh\Boring 1.xls\Sheet1A

Date: 9/24/2005
 Elevation: EXISTING
 File #: 05-100-1
 3 OF 5
 Corner of Proposed

Precision Engineering, Inc.
 P.O. Box 422
 Las Cruces, NM 88004
 505-823-7874

File #: 05-100
 Site: Giant Cniza

Elevation: EXISTING
 Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
	45.0-50.0			45.0	Mudstone/Siltstone, Bright Red/Brown, Dry Very Dense				
	50.0-55.0			50.0	Same As Above				
	55.0-60.0			55.0	Same As Above				
	60.0-65.0			60.0	Same As Above				
SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER									
LOGGED BY: WHK									

Sheet: 4 OF 5
 Bore Point: SW Corner of Proposed
 Fire Water Lagoon
 Water Elevation:
 Boring No.: 05-100-1

Precision Engineering, Inc.
 P.O. Box 422
 Las Cruces, NM 88004
 505-523-7674

Set 5 of 5
 SW Corner of
 Fire Lagoon
 Elevation: Existing
 Date: 9/24/2015
 Boring No.: 05-100-1

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS	%M	LL	PI	CLASS
					(MOISTURE, CONDITION, COLOR, ETC.)				
	65.0-66.2			65.0	Same As Above				
	66.2-67.4				Sandstone, Fine, Red/Brown, Hard, Fissile Grey/Green Orbicular Reduction Spots Abundant, Dry				
	67.4-75.0				Sandstone/Siltstone Interbeds, Some Mudstone, Dark Red/Brown, Hard, Dry				
				70.0					
				75.0					
	78.0-79.1				Mudstone, Fissile, Dry, Red/Brown, Some Grey/Green Reduction Spots				
	79.1-87.7			80.0	Sandstone, Fine, Red/Brown, Fissile, Hard Feldspathic, Bedded 6" to 1.0', White Mottled Upper Sonora Member				
				85.0					
SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER						LOGGED BY: WHK			

ICS
RETIC
%M
LL
PI
CLASS

Elevation: EXISTING
Date: 9/24/2005
File # 05-100-1
Site: Giant Girders
Corner of Proposed
Lapport
Accession
No. 05-100-1

Precision Engineering, Inc.
P.O. Box 422
Las Cruces, NM 88004
505-523-7674

File #: 05-100
Site: Giant Girders
Elevation: EXISTING
Date: 9/24/2005

Log of Test Borings

LAB #	DEPTH	BLOW COUNT	PLOT	SCALE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, ETC.)	%M	LL	PI	CLASS
				90.0	Upper Sonora Member Continued (dry)				
				95.0					
	97.7-98.2				<u>Mudstone</u> , Hard, Dry, Green/Grey-White				
	98.2-101.6			100.0	<u>Sandstone</u> , Fine to Medium, Quartz Grains, Water Bearing, Hard, (Sonora Member, Petrified Forest Formation, Chinle Group)				
	101.6			105.0	TD Boring continuously sampled using 5' split barreled intrusion sampler. Boring closed using 10' of 3/8" TR-30 Pel Plug capped with 50' of 8% bentonite cement slurry and backfilled to the ground surface with cuttings.				

SIZE & TYPE OF BORING: 4 1/4" ID HOLLOW STEMMED AUGER

LOGGED BY: WHK

Appendix F

Field Methods

Field Methods

Pursuant to the Investigation Work Plan for the North Drainage Ditch and the OW-29 and OW-30 area, 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 North Drainage Ditch and permanent wells were installed in the area of OW-29 and OW-30. The field methods are described below and individual discussions are presented for the following activities:

- Drilling procedures;
- Soil screening;
- Decontamination procedures;
- Monitoring well development;
- Fluid level measurements;
- Purging of temporary monitoring wells/groundwater sample collection;
- Sample collection and handling procedures;
- Vadose zone vapor sampling;
- Equipment calibration; and
- Management of investigation derived waste.

Drilling Procedures

The soil borings were drilled using the hollow-stem auger (HSA) method or a hand auger. 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 Screening

Samples obtained from the deeper borings were screened in the field on 2-foot intervals for evidence of contaminants. Samples collected from the hand auger borings were screened from the 0 to 0.5 feet interval and the 1.5 to 2 feet interval for evidence of contaminants. 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. 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 purging the wells of potentially stagnant groundwater. A Geotech Interface Probe was used to measure fluid levels to 0.01 foot.

Well Development/Purging

The following wells were developed/purged using a new disposable bailer attached to the end of the clean rope.

- Temporary Wells – NDD-3, NDD-4, NDD-6, NDD-11, and NDD-16; and
 - Permanent Well - OW-56.
-
-

The following wells were developed/purged using a pump. The pump was decontaminated between wells. New tubing was used at each well.

- Permanent Wells - OW-54 and OW-55.

The groundwater and sediment removed from the wells were transported to the bundle cleaning pad in sealed 5-gallon buckets.

The purge volumes are calculated as follows:

Volume (gallons) = water column thickness (ft) x 3.14 x radius of well casing² (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)
NDD-3 (5-14-15)	8.07	4.12	4.5
NDD-4 (5-25-16)	6.13	3.13	Bailed dry at 2.5
NDD-6 (5-25-16)	9.83	5.00	Bailed dry at 12
NDD-11 (5-25-16)	8.65	4.41	20
NDD-16 (5-25-16)	7.82	3.99	Bailed dry at 5
OW-53 (5-31-16)	Dry	NA	NA
OW-54 (5-31-16)	11.60	5.91	45
OW-55 (5-31-16)	11.94	10.15	42.5
OW-56 (5-31-16)	1.94	0.99	3

NA – not applicable

Field measurements of groundwater stabilization parameters included pH, specific conductance, dissolved oxygen concentrations, oxidation-reduction potential, and temperature and the readings taken immediately prior to sample collection are presented in Table 4.

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. Three soil samples were collected for VOC analysis in the following manner:

- Two sample aliquots were collected using a syringe for low-level VOC analysis pursuant to EPA method 5035. For these “Terracore” kits, 4- 5 grams (4cc) of soil was injected into each vial using the syringe. The syringes were disposed after soil collection.
- 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.
- 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 semivolatile 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 at the beginning of each day are as follows:

-
- pH solution;
 - 7.0 pH solution;
 - 10.0 pH solution; and
 - 1.413 mS/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 5-gallon buckets 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 G
May 2016 Soil Boring Logs and Well Logs



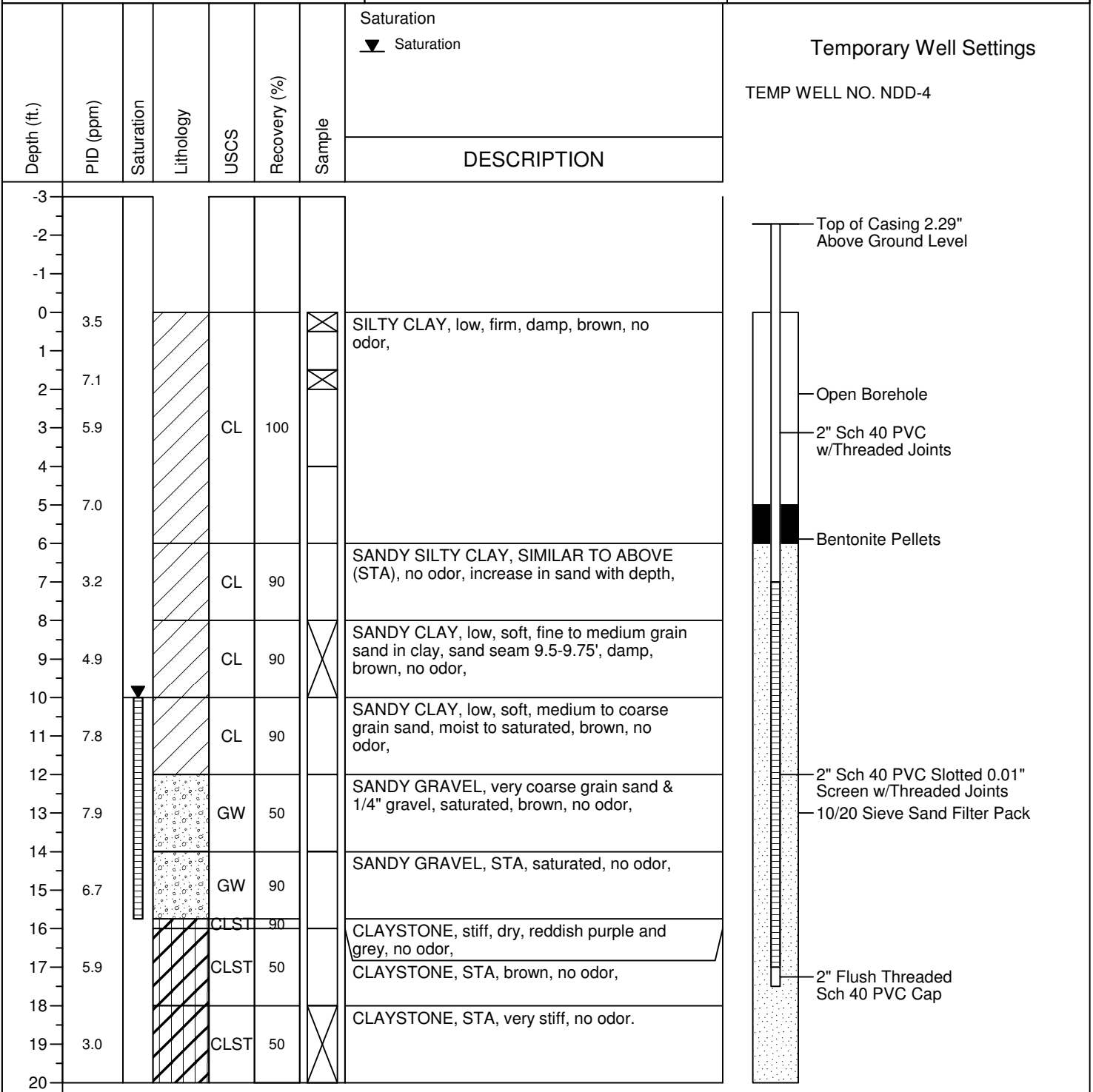
Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : CME 75
Drilling Method : Hollow-Stem Auger 7.25"
Sampling Method : Split Spoon
Comments :
Total Depth : 20'
Ground Water : 10'
Start Date : 05/23/2016
Finish Date : 05/23/2016

BORING NO. NDD-4

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6913.02
Site Coordinates :
N : N 1635587.47
E : E 2546592.11



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Houston, Texas 77002
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8501 N. MoPac Expy, Suite 300
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512-693-4190



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-5

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6913.91
Site Coordinates :
N : N 1635583.59
E : E 2546416.63

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
0	6.5							
1				ML	100			
2	339							
3								
4								
5								
6								
7								
8								
9								
10								

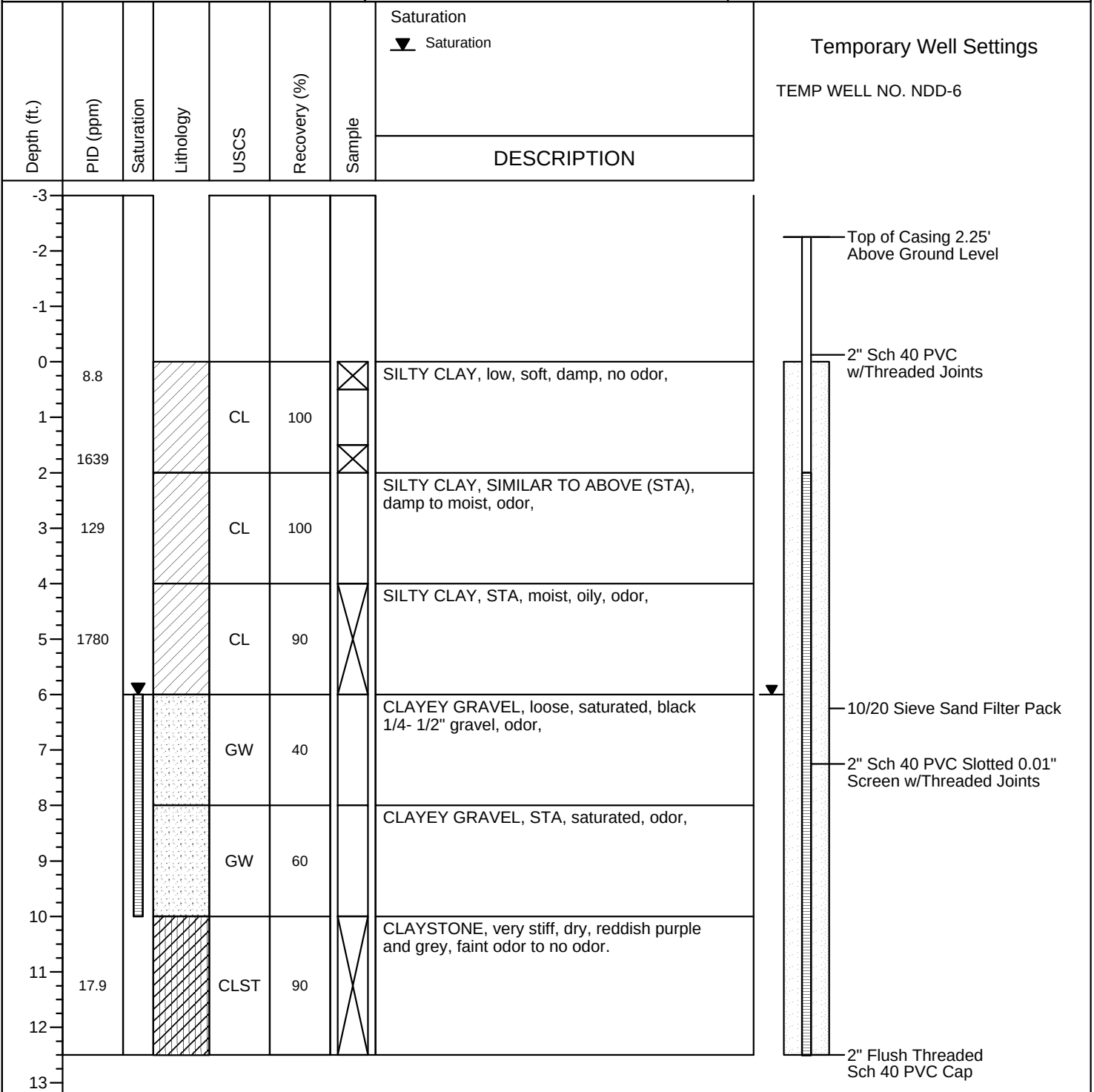
Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST16006

Geologist : Tracy Payne
Driller : Enviro-Drill, Inc. / Cohagan
Drilling Rig : CME 75
Drilling Method : 7.25" Hollow Stem Auger
Sampling Method : Split Spoon
Comments : Hand Auger to 5' BGL
Total Depth : 12.5'
Ground Water : 6'
Start Date : 05/23/2016
Finish Date : 05/23/2016

BORING NO. NDD-6

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6912.97
Site Coordinates :
N : N 1635617.26
E : E 2546257.76





Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/23/2016
Finish Date : 05/23/2016

BORING NO. NDD-6A
(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6911.18
Site Coordinates :
N : N 35° 29.638'
E : W 108° 25.635'

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
0	8.8			CL	100		SILTY CLAY, low, soft, damp to wet, odor.	
1								
2	1639							
3								
4								
5								
6								
7								
8								
9								
10								

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Austin, Texas 78759
512-693-4190



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-7

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6911.38
Site Coordinates :
N : N 1635691.31
E : E 2546173.94

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	Completion Results
							DESCRIPTION	
0	3.3						SILTY CLAY, low, soft, damp, no odor.	
1				CL	100			
2	9.4							
3								
4								
5								
6								
7								
8								
9								
10								



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-8

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6910.42
Site Coordinates :
N : N 1635677.68
E : E 2546167.50

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Completion Results
0	11.3							SILTY CLAY, low, soft, damp to moist, oily, odor at base.	
1				CL	100				
2	904								
3									
4									
5									
6									
7									
8									
9									
10									



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-9

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6912.09
Site Coordinates :
N : N 1635667.33
E : E 2546160.89

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION
0	18.5							SILTY CLAY, low, soft, damp to moist, oily, odor at base.
1				CL	100			
2	1530							
3								
4								
5								
6								
7								
8								
9								
10								



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-10
(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6908.74
Site Coordinates :
N : N 1635765.48
E : E 2546031.06

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Completion Results
0	8.8							SILTY CLAY, low, soft, damp, brown, no odor.	
1				CL	100				
12.3									
2									
3									
4									
5									
6									
7									
8									
9									
10									

Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST16006

Geologist : Tracy Payne
Driller : Enviro-Drill, Inc. / Cohagan
Drilling Rig : CME 75
Drilling Method : 7.25" Hollow Stem Auger
Sampling Method : 2' Split Spoon
Comments : Hand Auger to 2' BGL
Total Depth : 14' - Gravelly
Ground Water : 2'
Start Date : 05/23/2016
Finish Date : 05/23/2016

BORING NO. NDD-11

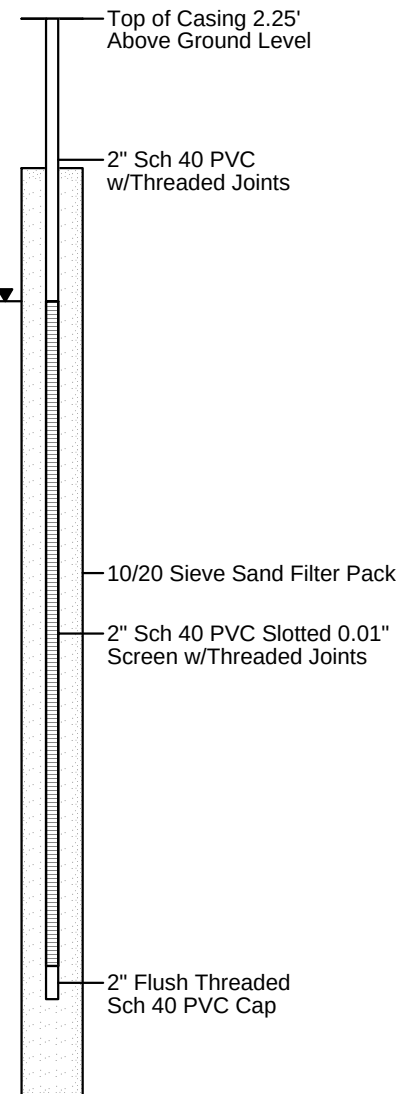
(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6908.54
Site Coordinates :
N : N 1635757.61
E : E 2546024.94

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation
							DESCRIPTION
-3							
-2							
-1							
0	3.2						
1				CL	100		GRAVELLY SILTY CLAY, low, soft, damp, brown, no odor,
2	4.6						
3				CL	100		SANDY CLAY, low, soft, very moist to saturated, brown, odor,
4							
5				SC	10		CLAYEY SAND, fine to medium, loose, saturated, black, odor,
6							
7				SC	90		CLAYEY SAND, SIMILAR TO ABOVE (STA), saturated, brown, odor,
8							
9				SM	50		SILTY SAND, fine to medium, loose, saturated, clay at base, brown, odor,
10							
11	29.3			CLST	20		CLAYSTONE, very stiff, reddish purple and grey, no odor,
12							
13	21.2			CLST	50		CLAYSTONE, STA, dry, no odor.
14							
15							

Completion Results

TEMP WELL NO. NDD-11





Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-12

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6910.72
Site Coordinates :
N : N 1635747.93
E : E 2546018.74

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Completion Results
0	8.9							SILT, low, soft, damp, no odor, odor at base.	
1				ML	100				
2	66.4								
3									
4									
5									
6									
7									
8									
9									
10									



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-13
(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6905.14
Site Coordinates :
N : N 1635872.71
E : E 2545854.34

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Completion Results
0	5.6							SILTY CLAY, low, soft, damp, brown, no odor.	
1				CL	100				
2	8.0								
3									
4									
5									
6									
7									
8									
9									
10									



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-14

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6904.11
Site Coordinates :
N : N 1635858.65
E : E 2545847.68

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION
0	5.7							SILTY CLAY, low, soft, damp to moist, brown, no odor.
1				CL	100			
1.6								
2								
3								
4								
5								
6								
7								
8								
9								
10								



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-15

(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6905.27
Site Coordinates :
N : N 1635844.18
E : E 2545841.55

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION
0	7.1							SILTY CLAY, low, firm, damp to moist, brown, no odor.
1				CL	100			
2	6.3							
3								
4								
5								
6								
7								
8								
9								
10								



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST16006

Geologist : Tracy Payne
Driller : Enviro-Drill, Inc. / Cohagan
Drilling Rig : CME 75
Drilling Method : Hollow Stem Auger
Sampling Method : Split Spoon
Comments : Hand Auger to 5' BGL
Total Depth : 24' BGL
Ground Water : 16' BGL
Start Date : 05/24/2016
Finish Date : 05/24/2016

BORING NO. NDD-16

(Sheet 1 of 2)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6902.29
Site Coordinates :
N : N 1635916.92
E : E 2545737.03

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Temporary Well Settings				
							Temp Well No. NDD-16						
-3													
-2													
-1													
0	5.1					✕		CLAY, high, stiff, damp, brown, no odor,					
1													
2	14.3					✕							
3	5.3			CH	100								
4													
5	5.6												
6								CLAY, SIMILAR TO ABOVE (STA), no odor,					
7	12.1			CH	100								
8								CLAY, STA, no odor,					
9	12.3			CH	90								
10								CLAY, STA, no odor,					
11	12.6			CH									

Top of Casing 2.25'
Above Ground Level

Open Borehole

2" Sch 40 PVC
w/Threaded Joints

Bentonite Pellets

10/20 Sieve Sand Filter Pack

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

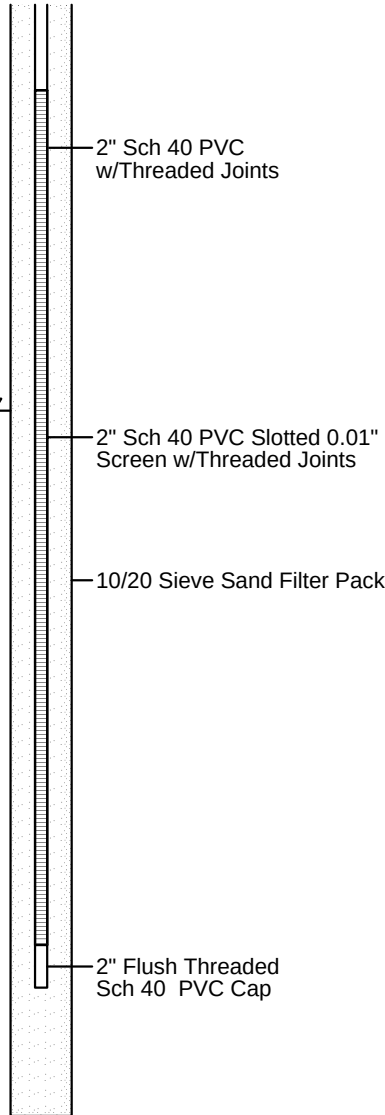
Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST16006

Geologist : Tracy Payne
Driller : Enviro-Drill, Inc. / Cohagan
Drilling Rig : CME 75
Drilling Method : Hollow Stem Auger
Sampling Method : Split Spoon
Comments : Hand Auger to 5' BGL
Total Depth : 24' BGL
Ground Water : 16' BGL
Start Date : 05/24/2016
Finish Date : 05/24/2016

BORING NO. NDD-16

(Sheet 2 of 2)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6902.29
Site Coordinates :
N : N 35° 29' 41.01"
E : W 108° 25' 45.02"

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Temporary Well Settings Temp Well No. NDD-16
11	12.6			CH	90				
12				CH	80			CLAY, STA, no odor,	
13	12.0			CH	80				
14				CL	60			SILTY CLAY, low, soft, damp, brown, no odor,	
15	12.9			CL	60				
16				CL	90			GRAVELLY SANDY CLAY, low, firm, very moist to saturated in sand seams, brown, no odor,	
17				CL	90				
18				CL	60			GRAVELLY SANDY CLAY, STA, no odor,	
19				CL	60				
20	4.5			CLST	60			CLAYSTONE, very dense, trace fine grain sand, damp to dry, brown and grey, no odor, CLAYSTONE, STA,	
21	4.8			CLST	50				
22				CLST	60			CLAYSTONE, STA.	
23	4.2			CLST	60				
24									
25									



Western Refining SW, Inc.
Gallup Refinery - North Drainage Ditch
Job No. WEST15005

Geologist : Tracy Payne
Driller : Enviro-Drill \ Cohagan
Drilling Rig : NA
Drilling Method : Hand Auger
Sampling Method : Auger Bucket
Comments :
Total Depth : 2'
Ground Water : Not Encountered
Start Date : 05/19/2016
Finish Date : 05/19/2016

BORING NO. NDD-17
(Sheet 1 of 1)

Elev., TOC (ft.msl) : NA
Elev., PAD (ft. msl) : NA
Elev., GL (ft. msl) : 6903.49
Site Coordinates :
N : N 1635917.01
E : E 2545737.01

Depth (ft.)	PID (ppm)	Saturation	Lithology	USCS	Recovery (%)	Sample	Saturation ▼ Saturation	DESCRIPTION	Completion Results
0	4.5							SILTY CLAY, low, firm, damp, brown, no odor.	
1				CL	100				
2	9.8								
3									
4									
5									
6									
7									
8									
9									
10									

Appendix H
Analytical Data Reports
Provided in electronic format only on CD



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

July 08, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: North Drainage Ditch

OrderNo.: 1605B47

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 13 sample(s) on 5/24/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	5/27/2016 8:30:45 AM	25517
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/27/2016 8:30:45 AM	25517
Surr: DNOP	92.2	0	70-141		%Rec	1	5/27/2016 8:30:45 AM	25517
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/31/2016 3:24:19 PM	A34579
Surr: BFB	83.9	0	66.4-120		%Rec	1	5/31/2016 3:24:19 PM	A34579
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.023	0.10		mg/L	1	5/26/2016 9:35:08 PM	R34520
Chloride	0.069	0.027	0.50	J	mg/L	1	5/26/2016 9:35:08 PM	R34520
Sulfate	ND	0.064	0.50		mg/L	1	5/26/2016 9:35:08 PM	R34520
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/1/2016 3:48:36 PM	A34614
Beryllium	ND	0.00031	0.0020		mg/L	1	6/1/2016 3:48:36 PM	A34614
Cadmium	ND	0.00075	0.0020		mg/L	1	6/1/2016 3:48:36 PM	A34614
Chromium	ND	0.0018	0.0060		mg/L	1	6/1/2016 3:48:36 PM	A34614
Cobalt	ND	0.00074	0.0060		mg/L	1	6/1/2016 3:48:36 PM	A34614
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 3:48:36 PM	A34614
Manganese	0.0015	0.00032	0.0020	J	mg/L	1	6/1/2016 3:48:36 PM	A34614
Nickel	ND	0.0024	0.010		mg/L	1	6/1/2016 3:48:36 PM	A34614
Silver	ND	0.0028	0.0050		mg/L	1	6/1/2016 3:48:36 PM	A34614
Vanadium	ND	0.0013	0.050		mg/L	1	6/1/2016 3:48:36 PM	A34614
Zinc	0.0029	0.0028	0.010	J	mg/L	1	6/1/2016 3:48:36 PM	A34614
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/1/2016 5:27:06 PM	B34614
Beryllium	ND	0.00031	0.0020		mg/L	1	6/1/2016 5:27:06 PM	B34614
Cadmium	ND	0.00075	0.0020		mg/L	1	6/1/2016 5:27:06 PM	B34614
Chromium	ND	0.0022	0.0060		mg/L	1	6/1/2016 5:27:06 PM	B34614
Cobalt	ND	0.00085	0.0060		mg/L	1	6/1/2016 5:27:06 PM	B34614
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 5:27:06 PM	B34614
Manganese	ND	0.0015	0.0020		mg/L	1	6/1/2016 5:27:06 PM	B34614
Nickel	ND	0.0024	0.010		mg/L	1	6/1/2016 5:27:06 PM	B34614
Silver	ND	0.0028	0.0050		mg/L	1	6/1/2016 5:27:06 PM	B34614
Vanadium	ND	0.0015	0.050		mg/L	1	6/1/2016 5:27:06 PM	B34614
Zinc	ND	0.0039	0.010		mg/L	1	6/1/2016 5:27:06 PM	B34614
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	5/31/2016 7:14:55 PM	A34588
Arsenic	ND	0.00014	0.0010		mg/L	1	5/31/2016 7:14:55 PM	A34588

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	ND	0.00017	0.00050		mg/L	1	5/31/2016 7:14:55 PM	A34588
Selenium	ND	0.00021	0.0010		mg/L	1	5/31/2016 7:14:55 PM	A34588
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/2/2016 1:26:32 PM	B34651
Arsenic	ND	0.00029	0.0010		mg/L	1	6/2/2016 1:26:32 PM	B34651
Lead	ND	0.00017	0.00050		mg/L	1	6/2/2016 1:26:32 PM	B34651
Selenium	ND	0.00021	0.0010		mg/L	1	6/2/2016 1:26:32 PM	B34651
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000081	0.000053	0.00020	J	mg/L	1	5/27/2016 11:29:19 AM	25541
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Acenaphthylene	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Aniline	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Anthracene	ND	2.5	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Azobenzene	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzoic acid	ND	2.6	20		µg/L	1	6/1/2016 2:46:20 PM	25546
Benzyl alcohol	ND	3.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Bis(2-ethylhexyl)phthalate	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Carbazole	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Chloroaniline	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Chlorophenol	ND	2.2	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Chrysene	ND	2.8	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Di-n-octyl phthalate	ND	2.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/1/2016 2:46:20 PM	25546
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Diethyl phthalate	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Dimethyl phthalate	2.6	2.4	10	J	µg/L	1	6/1/2016 2:46:20 PM	25546
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/1/2016 2:46:20 PM	25546
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/1/2016 2:46:20 PM	25546
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/1/2016 2:46:20 PM	25546
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Fluoranthene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Fluorene	ND	2.7	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Hexachloroethane	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Isophorone	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Methylphenol	ND	2.5	10		µg/L	1	6/1/2016 2:46:20 PM	25546
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/1/2016 2:46:20 PM	25546
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Naphthalene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Nitroaniline	ND	2.8	10		µg/L	1	6/1/2016 2:46:20 PM	25546
3-Nitroaniline	ND	2.9	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Nitroaniline	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Nitrobenzene	ND	2.8	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2-Nitrophenol	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
4-Nitrophenol	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Pentachlorophenol	ND	2.3	20		µg/L	1	6/1/2016 2:46:20 PM	25546
Phenanthrene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Phenol	ND	2.0	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Pyrene	ND	3.1	10		µg/L	1	6/1/2016 2:46:20 PM	25546

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/1/2016 2:46:20 PM	25546
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/1/2016 2:46:20 PM	25546
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/1/2016 2:46:20 PM	25546
Surr: 2-Fluorophenol	55.3	0	15-123		%Rec	1	6/1/2016 2:46:20 PM	25546
Surr: Phenol-d5	41.4	0	4.13-124		%Rec	1	6/1/2016 2:46:20 PM	25546
Surr: 2,4,6-Tribromophenol	85.1	0	18.4-134		%Rec	1	6/1/2016 2:46:20 PM	25546
Surr: Nitrobenzene-d5	72.5	0	28.8-134		%Rec	1	6/1/2016 2:46:20 PM	25546
Surr: 2-Fluorobiphenyl	74.4	0	35.9-125		%Rec	1	6/1/2016 2:46:20 PM	25546
Surr: 4-Terphenyl-d14	57.1	0	15-146		%Rec	1	6/1/2016 2:46:20 PM	25546
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Toluene	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Naphthalene	ND	0.093	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Acetone	ND	4.9	10		µg/L	1	6/3/2016 3:21:00 PM	R34673
Bromobenzene	ND	0.098	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Bromoform	ND	0.10	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Bromomethane	ND	0.78	3.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
2-Butanone	ND	0.74	10		µg/L	1	6/3/2016 3:21:00 PM	R34673
Carbon disulfide	ND	0.60	10		µg/L	1	6/3/2016 3:21:00 PM	R34673
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Chloroethane	ND	0.19	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Chloroform	ND	0.089	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Chloromethane	ND	0.21	3.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Dibromomethane	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
2-Hexanone	ND	0.84	10		µg/L	1	6/3/2016 3:21:00 PM	R34673
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/3/2016 3:21:00 PM	R34673
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Styrene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/3/2016 3:21:00 PM	R34673
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/3/2016 3:21:00 PM	R34673
Surr: 1,2-Dichloroethane-d4	90.4	0	70-130		%Rec	1	6/3/2016 3:21:00 PM	R34673
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	6/3/2016 3:21:00 PM	R34673

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052316

Project: North Drainage Ditch

Collection Date: 5/23/2016 5:50:00 PM

Lab ID: 1605B47-001

Matrix: AQUEOUS

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	87.7	0	70-130		%Rec	1	6/3/2016 3:21:00 PM	R34673
Surr: Toluene-d8	107	0	70-130		%Rec	1	6/3/2016 3:21:00 PM	R34673

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:15:00 AM

Lab ID: 1605B47-002

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.9	11		mg/Kg-dr	1	6/1/2016 8:32:23 PM	25570
Motor Oil Range Organics (MRO)	ND	54	54		mg/Kg-dr	1	6/1/2016 8:32:23 PM	25570
Surr: DNOP	120	0	70-130		%Rec	1	6/1/2016 8:32:23 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.70	3.4		mg/Kg-dr	1	6/1/2016 9:45:02 PM	25547
Surr: BFB	114	0	80-120		%Rec	1	6/1/2016 9:45:02 PM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	12	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.025	0.00064	0.037	J	mg/Kg-dr	1	6/2/2016 10:56:24 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.7	5.7		mg/Kg-dr	2	6/15/2016 7:24:27 AM	25603
Arsenic	3.5	0.83	2.8		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Barium	380	0.11	0.23		mg/Kg-dr	2	6/2/2016 3:54:21 PM	25603
Beryllium	1.1	0.0052	0.17		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Cadmium	ND	0.072	0.11		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Chromium	11	0.14	0.34		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Cobalt	5.5	0.043	0.34		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Iron	17000	110	280		mg/Kg-dr	100	6/2/2016 2:40:49 PM	25603
Lead	9.7	0.20	0.28		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Manganese	440	0.10	0.23		mg/Kg-dr	2	6/2/2016 3:54:21 PM	25603
Nickel	17	0.13	0.57		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Selenium	ND	1.2	2.8		mg/Kg-dr	1	6/5/2016 1:35:38 PM	25603
Silver	ND	0.036	0.28		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Vanadium	31	0.040	2.8		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
Zinc	41	0.65	2.8		mg/Kg-dr	1	6/2/2016 3:52:35 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.096	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Acenaphthylene	ND	0.091	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Aniline	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Anthracene	ND	0.075	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Azobenzene	ND	0.14	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benz(a)anthracene	ND	0.097	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benzo(a)pyrene	ND	0.085	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benzo(b)fluoranthene	ND	0.10	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benzo(g,h,i)perylene	ND	0.099	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benzo(k)fluoranthene	ND	0.099	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:15:00 AM

Lab ID: 1605B47-002

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.093	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Benzyl alcohol	ND	0.088	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Bis(2-chloroethoxy)methane	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Bis(2-chloroethyl)ether	ND	0.083	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.10	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Bis(2-ethylhexyl)phthalate	0.16	0.091	0.56	J	mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Butyl benzyl phthalate	ND	0.099	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Carbazole	ND	0.076	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Chloro-3-methylphenol	ND	0.13	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Chloroaniline	ND	0.12	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2-Chloronaphthalene	ND	0.088	0.28		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2-Chlorophenol	ND	0.089	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Chrysene	ND	0.096	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Di-n-butyl phthalate	ND	0.084	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Di-n-octyl phthalate	ND	0.096	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Dibenz(a,h)anthracene	ND	0.091	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Dibenzofuran	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
1,2-Dichlorobenzene	ND	0.086	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
1,3-Dichlorobenzene	ND	0.087	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
1,4-Dichlorobenzene	ND	0.095	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
3,3'-Dichlorobenzidine	ND	0.083	0.28		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Diethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Dimethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4-Dichlorophenol	ND	0.10	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4-Dimethylphenol	ND	0.12	0.34		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.068	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4-Dinitrophenol	ND	0.074	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4-Dinitrotoluene	ND	0.10	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.56		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Fluoranthene	ND	0.065	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Fluorene	ND	0.10	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Hexachlorobenzene	ND	0.089	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Hexachlorobutadiene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Hexachloroethane	ND	0.096	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.088	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
1-Methylnaphthalene	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:15:00 AM

Lab ID: 1605B47-002

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2-Methylphenol	ND	0.094	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
3+4-Methylphenol	ND	0.081	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Naphthalene	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2-Nitroaniline	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
3-Nitroaniline	ND	0.099	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Nitroaniline	ND	0.079	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Nitrobenzene	ND	0.12	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2-Nitrophenol	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
4-Nitrophenol	ND	0.086	0.28		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Pentachlorophenol	ND	0.072	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Phenanthrene	ND	0.076	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Phenol	ND	0.085	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Pyrene	ND	0.085	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Pyridine	ND	0.089	0.45		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
1,2,4-Trichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4,5-Trichlorophenol	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
2,4,6-Trichlorophenol	ND	0.093	0.22		mg/Kg-dr	1	6/7/2016 6:00:01 PM	25602
Surr: 2-Fluorophenol	57.8	0	28.3-102		%Rec	1	6/7/2016 6:00:01 PM	25602
Surr: Phenol-d5	71.6	0	35.7-103		%Rec	1	6/7/2016 6:00:01 PM	25602
Surr: 2,4,6-Tribromophenol	79.8	0	35.2-108		%Rec	1	6/7/2016 6:00:01 PM	25602
Surr: Nitrobenzene-d5	70.4		24-118		%Rec	1	6/7/2016 6:00:01 PM	25602
Surr: 2-Fluorobiphenyl	80.5		35.4-111		%Rec	1	6/7/2016 6:00:01 PM	25602
Surr: 4-Terphenyl-d14	75.7		15-91.7		%Rec	1	6/7/2016 6:00:01 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Toluene	ND	0.244	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Ethylbenzene	ND	0.271	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.339	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.342	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.333	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Naphthalene	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1-Methylnaphthalene	ND	0.230	4.04		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
2-Methylnaphthalene	ND	0.531	4.04		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Acetone	44.6	0.598	10.1		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:15:00 AM

Lab ID: 1605B47-002

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.205	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Bromodichloromethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Bromoform	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Bromomethane	ND	0.363	3.03		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
2-Butanone	2.86	0.728	10.1	J	µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Carbon disulfide	ND	0.747	10.1		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Carbon tetrachloride	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Chlorobenzene	ND	0.232	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Chloroethane	ND	0.373	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Chloroform	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Chloromethane	ND	0.512	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
2-Chlorotoluene	ND	0.344	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
4-Chlorotoluene	ND	0.336	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
cis-1,2-DCE	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
cis-1,3-Dichloropropene	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.215	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Dibromochloromethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Dibromomethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2-Dichlorobenzene	ND	0.294	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,3-Dichlorobenzene	ND	0.373	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,4-Dichlorobenzene	ND	0.378	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Dichlorodifluoromethane	ND	1.18	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1-Dichloroethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1-Dichloroethene	ND	0.331	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2-Dichloropropane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,3-Dichloropropane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
2,2-Dichloropropane	ND	0.255	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1-Dichloropropene	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Hexachlorobutadiene	ND	0.460	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
2-Hexanone	ND	0.503	10.1		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Isopropylbenzene	ND	0.254	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
4-Isopropyltoluene	ND	0.379	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
4-Methyl-2-pentanone	ND	4.04	10.1		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Methylene chloride	ND	2.02	3.03		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
n-Butylbenzene	ND	0.492	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
n-Propylbenzene	ND	0.362	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
sec-Butylbenzene	ND	0.359	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Styrene	ND	0.258	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
tert-Butylbenzene	ND	0.295	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:15:00 AM

Lab ID: 1605B47-002

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Tetrachloroethene (PCE)	ND	0.265	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
trans-1,2-DCE	ND	0.204	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
trans-1,3-Dichloropropene	ND	0.244	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.489	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.612	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1,1-Trichloroethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,1,2-Trichloroethane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Trichloroethene (TCE)	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Trichlorofluoromethane	ND	0.254	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
1,2,3-Trichloropropane	ND	2.02	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Vinyl chloride	ND	0.531	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Xylenes, Total	ND	0.805	2.02		µg/Kg-dry	1	5/26/2016 5:45:00 PM	25524
Surr: 1,2-Dichloroethane-d4	93.6	0	70-130		%Rec	1	5/26/2016 5:45:00 PM	25524
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	5/26/2016 5:45:00 PM	25524
Surr: Dibromofluoromethane	86.5	0	70-130		%Rec	1	5/26/2016 5:45:00 PM	25524
Surr: Toluene-d8	101	0	70-130		%Rec	1	5/26/2016 5:45:00 PM	25524

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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:25:00 AM

Lab ID: 1605B47-003

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.6	10		mg/Kg-dr	1	6/1/2016 9:37:05 PM	25570
Motor Oil Range Organics (MRO)	ND	51	51		mg/Kg-dr	1	6/1/2016 9:37:05 PM	25570
Surr: DNOP	112	0	70-130		%Rec	1	6/1/2016 9:37:05 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.87	4.2		mg/Kg-dr	1	6/1/2016 10:55:19 PM	25547
Surr: BFB	118	0	80-120		%Rec	1	6/1/2016 10:55:19 PM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	8.7	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0065	0.00061	0.036	J	mg/Kg-dr	1	6/2/2016 10:58:07 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.6	5.4		mg/Kg-dr	2	6/15/2016 7:29:29 AM	25603
Arsenic	1.8	0.79	2.7	J	mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Barium	520	0.11	0.22		mg/Kg-dr	2	6/2/2016 3:58:00 PM	25603
Beryllium	1.0	0.0050	0.16		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Cadmium	ND	0.069	0.11		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Chromium	8.3	0.14	0.32		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Cobalt	5.2	0.041	0.32		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Iron	16000	110	270		mg/Kg-dr	100	6/2/2016 2:42:17 PM	25603
Lead	6.5	0.19	0.27		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Manganese	450	0.096	0.22		mg/Kg-dr	2	6/2/2016 3:58:00 PM	25603
Nickel	9.1	0.12	0.54		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Selenium	ND	1.2	2.7		mg/Kg-dr	1	6/5/2016 1:37:06 PM	25603
Silver	ND	0.034	0.27		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Vanadium	17	0.038	2.7		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
Zinc	15	0.62	2.7		mg/Kg-dr	1	6/2/2016 3:56:13 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.094	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Acenaphthylene	ND	0.089	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Aniline	ND	0.10	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Anthracene	ND	0.073	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Azobenzene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benz(a)anthracene	ND	0.095	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benzo(a)pyrene	ND	0.083	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benzo(b)fluoranthene	ND	0.099	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benzo(g,h,i)perylene	ND	0.097	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benzo(k)fluoranthene	ND	0.097	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602

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	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:25:00 AM

Lab ID: 1605B47-003

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.091	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Benzyl alcohol	ND	0.086	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Bis(2-chloroethoxy)methane	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Bis(2-chloroethyl)ether	ND	0.081	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.098	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Bis(2-ethylhexyl)phthalate	0.16	0.090	0.55	J	mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Butyl benzyl phthalate	ND	0.097	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Carbazole	ND	0.074	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Chloro-3-methylphenol	ND	0.13	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Chloroaniline	ND	0.12	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2-Chloronaphthalene	ND	0.087	0.27		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2-Chlorophenol	ND	0.087	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Chrysene	ND	0.094	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Di-n-butyl phthalate	ND	0.082	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Di-n-octyl phthalate	ND	0.094	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Dibenz(a,h)anthracene	ND	0.089	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Dibenzofuran	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
1,2-Dichlorobenzene	ND	0.084	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
1,3-Dichlorobenzene	ND	0.085	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
1,4-Dichlorobenzene	ND	0.093	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
3,3'-Dichlorobenzidine	ND	0.081	0.27		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Diethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Dimethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4-Dichlorophenol	ND	0.10	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4-Dimethylphenol	ND	0.12	0.33		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.066	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4-Dinitrophenol	ND	0.073	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4-Dinitrotoluene	ND	0.098	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.55		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Fluoranthene	ND	0.063	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Fluorene	ND	0.10	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Hexachlorobenzene	ND	0.087	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Hexachlorobutadiene	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Hexachloroethane	ND	0.094	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.086	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
1-Methylnaphthalene	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:25:00 AM

Lab ID: 1605B47-003

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.13	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2-Methylphenol	ND	0.092	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
3+4-Methylphenol	ND	0.080	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Naphthalene	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2-Nitroaniline	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
3-Nitroaniline	ND	0.097	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Nitroaniline	ND	0.077	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Nitrobenzene	ND	0.11	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2-Nitrophenol	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
4-Nitrophenol	ND	0.084	0.27		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Pentachlorophenol	ND	0.071	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Phenanthrene	ND	0.075	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Phenol	ND	0.083	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Pyrene	ND	0.083	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Pyridine	ND	0.087	0.44		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
1,2,4-Trichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4,5-Trichlorophenol	ND	0.11	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
2,4,6-Trichlorophenol	ND	0.091	0.22		mg/Kg-dr	1	6/7/2016 6:31:08 PM	25602
Surr: 2-Fluorophenol	53.9	0	28.3-102		%Rec	1	6/7/2016 6:31:08 PM	25602
Surr: Phenol-d5	59.6	0	35.7-103		%Rec	1	6/7/2016 6:31:08 PM	25602
Surr: 2,4,6-Tribromophenol	76.8	0	35.2-108		%Rec	1	6/7/2016 6:31:08 PM	25602
Surr: Nitrobenzene-d5	63.8		24-118		%Rec	1	6/7/2016 6:31:08 PM	25602
Surr: 2-Fluorobiphenyl	65.6		35.4-111		%Rec	1	6/7/2016 6:31:08 PM	25602
Surr: 4-Terphenyl-d14	68.1		15-91.7		%Rec	1	6/7/2016 6:31:08 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Toluene	0.897	0.249	2.06	J	µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Ethylbenzene	ND	0.277	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.347	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.350	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.340	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Naphthalene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1-Methylnaphthalene	ND	0.234	4.13		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
2-Methylnaphthalene	ND	0.543	4.13		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Acetone	29.1	0.610	10.3		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:25:00 AM

Lab ID: 1605B47-003

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.210	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Bromodichloromethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Bromoform	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Bromomethane	ND	0.371	3.09		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
2-Butanone	2.19	0.744	10.3	J	µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Carbon disulfide	ND	0.763	10.3		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Carbon tetrachloride	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Chlorobenzene	ND	0.237	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Chloroethane	ND	0.381	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Chloroform	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Chloromethane	ND	0.523	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
2-Chlorotoluene	ND	0.351	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
4-Chlorotoluene	ND	0.343	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
cis-1,2-DCE	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
cis-1,3-Dichloropropene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.220	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Dibromochloromethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Dibromomethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2-Dichlorobenzene	ND	0.300	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,3-Dichlorobenzene	ND	0.381	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,4-Dichlorobenzene	ND	0.386	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Dichlorodifluoromethane	ND	1.20	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1-Dichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1-Dichloroethene	ND	0.338	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2-Dichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,3-Dichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
2,2-Dichloropropane	ND	0.260	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1-Dichloropropene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Hexachlorobutadiene	ND	0.470	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
2-Hexanone	ND	0.514	10.3		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Isopropylbenzene	ND	0.260	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
4-Isopropyltoluene	ND	0.387	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
4-Methyl-2-pentanone	ND	4.13	10.3		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Methylene chloride	ND	2.06	3.09		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
n-Butylbenzene	ND	0.502	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
n-Propylbenzene	ND	0.369	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
sec-Butylbenzene	ND	0.366	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Styrene	ND	0.264	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
tert-Butylbenzene	ND	0.301	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:25:00 AM

Lab ID: 1605B47-003

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Tetrachloroethene (PCE)	ND	0.271	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
trans-1,2-DCE	ND	0.208	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
trans-1,3-Dichloropropene	ND	0.250	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.499	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.626	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1,1-Trichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,1,2-Trichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Trichloroethene (TCE)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Trichlorofluoromethane	ND	0.259	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
1,2,3-Trichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Vinyl chloride	ND	0.543	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Xylenes, Total	ND	0.822	2.06		µg/Kg-dry	1	5/26/2016 6:10:00 PM	25524
Surr: 1,2-Dichloroethane-d4	96.2	0	70-130		%Rec	1	5/26/2016 6:10:00 PM	25524
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/26/2016 6:10:00 PM	25524
Surr: Dibromofluoromethane	89.9	0	70-130		%Rec	1	5/26/2016 6:10:00 PM	25524
Surr: Toluene-d8	98.0	0	70-130		%Rec	1	5/26/2016 6:10:00 PM	25524

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
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	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (8-10')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:35:00 AM

Lab ID: 1605B47-004

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.9	11		mg/Kg-dr	1	6/1/2016 9:58:31 PM	25570
Motor Oil Range Organics (MRO)	ND	55	55		mg/Kg-dr	1	6/1/2016 9:58:31 PM	25570
Surr: DNOP	90.7	0	70-130		%Rec	1	6/1/2016 9:58:31 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.91	4.4		mg/Kg-dr	1	6/1/2016 11:18:43 PM	25547
Surr: BFB	117	0	80-120		%Rec	1	6/1/2016 11:18:43 PM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	15	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0041	0.00064	0.038	J	mg/Kg-dr	1	6/2/2016 10:59:51 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.8		mg/Kg-dr	2	6/15/2016 7:30:45 AM	25603
Arsenic	1.7	0.85	2.9	J	mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Barium	490	0.11	0.23		mg/Kg-dr	2	6/2/2016 4:09:35 PM	25603
Beryllium	0.75	0.0054	0.17		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Cadmium	ND	0.074	0.12		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Chromium	5.9	0.15	0.35		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Cobalt	3.6	0.044	0.35		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Iron	11000	110	290		mg/Kg-dr	100	6/2/2016 2:43:49 PM	25603
Lead	4.2	0.20	0.29		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Manganese	400	0.10	0.23		mg/Kg-dr	2	6/2/2016 4:09:35 PM	25603
Nickel	6.0	0.13	0.58		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/5/2016 1:43:43 PM	25603
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Vanadium	13	0.041	2.9		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
Zinc	11	0.66	2.9		mg/Kg-dr	1	6/2/2016 4:00:07 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Acenaphthylene	ND	0.095	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Aniline	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Anthracene	ND	0.078	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benz(a)anthracene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benzo(a)pyrene	ND	0.089	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (8-10')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:35:00 AM

Lab ID: 1605B47-004

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.097	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Benzyl alcohol	ND	0.092	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Bis(2-chloroethyl)ether	ND	0.086	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Bis(2-ethylhexyl)phthalate	0.15	0.095	0.58	J	mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Carbazole	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Chloroaniline	ND	0.13	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2-Chloronaphthalene	ND	0.092	0.29		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2-Chlorophenol	ND	0.092	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Chrysene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Di-n-butyl phthalate	ND	0.087	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Dibenz(a,h)anthracene	ND	0.095	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Dibenzofuran	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
1,2-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
1,3-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
1,4-Dichlorobenzene	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
3,3'-Dichlorobenzidine	ND	0.086	0.29		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.071	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4-Dinitrophenol	ND	0.078	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4-Dinitrotoluene	ND	0.10	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.58		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Fluoranthene	ND	0.067	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Fluorene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Hexachlorobenzene	ND	0.092	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Hexachloroethane	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
1-Methylnaphthalene	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (8-10')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:35:00 AM

Lab ID: 1605B47-004

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2-Methylphenol	ND	0.098	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
3+4-Methylphenol	ND	0.085	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2-Nitroaniline	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Nitroaniline	ND	0.082	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2-Nitrophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
4-Nitrophenol	ND	0.089	0.29		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Pentachlorophenol	ND	0.075	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Phenanthrene	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Phenol	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Pyridine	ND	0.093	0.47		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
2,4,6-Trichlorophenol	ND	0.097	0.23		mg/Kg-dr	1	6/7/2016 3:24:17 PM	25602
Surr: 2-Fluorophenol	51.6	0	28.3-102		%Rec	1	6/7/2016 3:24:17 PM	25602
Surr: Phenol-d5	56.5	0	35.7-103		%Rec	1	6/7/2016 3:24:17 PM	25602
Surr: 2,4,6-Tribromophenol	55.9	0	35.2-108		%Rec	1	6/7/2016 3:24:17 PM	25602
Surr: Nitrobenzene-d5	58.5		24-118		%Rec	1	6/7/2016 3:24:17 PM	25602
Surr: 2-Fluorobiphenyl	59.5		35.4-111		%Rec	1	6/7/2016 3:24:17 PM	25602
Surr: 4-Terphenyl-d14	49.3		15-91.7		%Rec	1	6/7/2016 3:24:17 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Toluene	0.515	0.230	1.91	J	µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Ethylbenzene	ND	0.256	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.320	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.323	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.314	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2-Dichloroethane (EDC)	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2-Dibromoethane (EDB)	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Naphthalene	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1-Methylnaphthalene	ND	0.217	3.81		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
2-Methylnaphthalene	ND	0.502	3.81		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Acetone	6.80	0.564	9.53	J	µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (8-10')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:35:00 AM

Lab ID: 1605B47-004

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.194	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Bromodichloromethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Bromoform	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Bromomethane	ND	0.343	2.86		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
2-Butanone	ND	0.687	9.53		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Carbon disulfide	ND	0.705	9.53		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Carbon tetrachloride	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Chlorobenzene	ND	0.219	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Chloroethane	ND	0.352	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Chloroform	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Chloromethane	ND	0.483	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
2-Chlorotoluene	ND	0.324	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
4-Chlorotoluene	ND	0.317	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
cis-1,2-DCE	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
cis-1,3-Dichloropropene	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.203	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Dibromochloromethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Dibromomethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2-Dichlorobenzene	ND	0.278	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,3-Dichlorobenzene	ND	0.352	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,4-Dichlorobenzene	ND	0.357	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Dichlorodifluoromethane	ND	1.11	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1-Dichloroethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1-Dichloroethene	ND	0.312	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2-Dichloropropane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,3-Dichloropropane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
2,2-Dichloropropane	ND	0.241	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1-Dichloropropene	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Hexachlorobutadiene	ND	0.434	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
2-Hexanone	ND	0.475	9.53		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Isopropylbenzene	ND	0.240	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
4-Isopropyltoluene	ND	0.358	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
4-Methyl-2-pentanone	ND	3.81	9.53		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Methylene chloride	ND	1.91	2.86		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
n-Butylbenzene	ND	0.464	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
n-Propylbenzene	ND	0.341	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
sec-Butylbenzene	ND	0.338	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Styrene	ND	0.244	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
tert-Butylbenzene	ND	0.278	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (8-10')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:35:00 AM

Lab ID: 1605B47-004

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Tetrachloroethene (PCE)	ND	0.250	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
trans-1,2-DCE	ND	0.193	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
trans-1,3-Dichloropropene	ND	0.231	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.461	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.578	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1,1-Trichloroethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,1,2-Trichloroethane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Trichloroethene (TCE)	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Trichlorofluoromethane	ND	0.239	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
1,2,3-Trichloropropane	ND	1.91	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Vinyl chloride	ND	0.501	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Xylenes, Total	ND	0.760	1.91		µg/Kg-dry	1	5/26/2016 6:35:00 PM	25524
Surr: 1,2-Dichloroethane-d4	98.0	0	70-130		%Rec	1	5/26/2016 6:35:00 PM	25524
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	5/26/2016 6:35:00 PM	25524
Surr: Dibromofluoromethane	89.2	0	70-130		%Rec	1	5/26/2016 6:35:00 PM	25524
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	5/26/2016 6:35:00 PM	25524

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (18-20')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:45:00 AM

Lab ID: 1605B47-005

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.3	12		mg/Kg-dr	1	6/1/2016 10:20:07 PM	25570
Motor Oil Range Organics (MRO)	ND	60	60		mg/Kg-dr	1	6/1/2016 10:20:07 PM	25570
Surr: DNOP	86.9	0	70-130		%Rec	1	6/1/2016 10:20:07 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.76	3.7		mg/Kg-dr	1	6/1/2016 11:42:08 PM	25547
Surr: BFB	117	0	80-120		%Rec	1	6/1/2016 11:42:08 PM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	18	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0015	0.00067	0.039	J	mg/Kg-dr	1	6/2/2016 11:01:36 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	6.0		mg/Kg-dr	2	6/23/2016 11:05:22 AM	25603
Arsenic	3.0	0.88	3.0		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Barium	170	0.058	0.12		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Beryllium	1.2	0.0055	0.18		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Cadmium	ND	0.076	0.12		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Chromium	11	0.15	0.36		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Cobalt	6.6	0.046	0.36		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Iron	20000	120	300		mg/Kg-dr	100	6/2/2016 2:45:33 PM	25603
Lead	4.8	0.21	0.30		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Manganese	240	0.053	0.12		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Nickel	13	0.14	0.60		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/5/2016 1:45:08 PM	25603
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Vanadium	15	0.042	3.0		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
Zinc	26	0.68	3.0		mg/Kg-dr	1	6/2/2016 4:11:36 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Aniline	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Anthracene	ND	0.081	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benzo(a)pyrene	ND	0.093	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (18-20')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:45:00 AM

Lab ID: 1605B47-005

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Benzyl alcohol	ND	0.096	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Bis(2-chloroethyl)ether	ND	0.090	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Bis(2-ethylhexyl)phthalate	0.17	0.10	0.61	J	mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Carbazole	ND	0.083	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Chloro-3-methylphenol	ND	0.15	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2-Chloronaphthalene	ND	0.097	0.31		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2-Chlorophenol	ND	0.097	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Chrysene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Di-n-butyl phthalate	ND	0.092	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Dibenz(a,h)anthracene	ND	0.099	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Dibenzofuran	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
1,2-Dichlorobenzene	ND	0.094	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
1,3-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
1,4-Dichlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
3,3'-Dichlorobenzidine	ND	0.090	0.31		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Diethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.074	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4-Dinitrophenol	ND	0.081	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Fluoranthene	ND	0.071	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Hexachlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.096	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
1-Methylnaphthalene	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (18-20')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:45:00 AM

Lab ID: 1605B47-005

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
3+4-Methylphenol	ND	0.089	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
4-Nitrophenol	ND	0.093	0.31		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Pentachlorophenol	ND	0.079	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Phenanthrene	ND	0.083	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Phenol	ND	0.092	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Pyrene	ND	0.093	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Pyridine	ND	0.097	0.49		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 3:55:31 PM	25602
Surr: 2-Fluorophenol	61.2	0	28.3-102		%Rec	1	6/7/2016 3:55:31 PM	25602
Surr: Phenol-d5	67.7	0	35.7-103		%Rec	1	6/7/2016 3:55:31 PM	25602
Surr: 2,4,6-Tribromophenol	69.9	0	35.2-108		%Rec	1	6/7/2016 3:55:31 PM	25602
Surr: Nitrobenzene-d5	72.1		24-118		%Rec	1	6/7/2016 3:55:31 PM	25602
Surr: 2-Fluorobiphenyl	68.1		35.4-111		%Rec	1	6/7/2016 3:55:31 PM	25602
Surr: 4-Terphenyl-d14	57.7		15-91.7		%Rec	1	6/7/2016 3:55:31 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Toluene	ND	0.210	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Ethylbenzene	ND	0.233	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.292	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.295	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.287	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2-Dichloroethane (EDC)	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2-Dibromoethane (EDB)	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Naphthalene	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1-Methylnaphthalene	ND	0.197	3.47		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
2-Methylnaphthalene	ND	0.457	3.47		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Acetone	1.26	0.514	8.69	J	µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (18-20')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:45:00 AM

Lab ID: 1605B47-005

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.177	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Bromodichloromethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Bromoform	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Bromomethane	ND	0.313	2.61		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
2-Butanone	ND	0.626	8.69		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Carbon disulfide	ND	0.643	8.69		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Carbon tetrachloride	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Chlorobenzene	ND	0.199	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Chloroethane	ND	0.321	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Chloroform	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Chloromethane	ND	0.440	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
2-Chlorotoluene	ND	0.296	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
4-Chlorotoluene	ND	0.289	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
cis-1,2-DCE	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
cis-1,3-Dichloropropene	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.185	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Dibromochloromethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Dibromomethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2-Dichlorobenzene	ND	0.253	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,3-Dichlorobenzene	ND	0.321	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,4-Dichlorobenzene	ND	0.325	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Dichlorodifluoromethane	ND	1.01	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1-Dichloroethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1-Dichloroethene	ND	0.284	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2-Dichloropropane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,3-Dichloropropane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
2,2-Dichloropropane	ND	0.219	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1-Dichloropropene	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Hexachlorobutadiene	ND	0.396	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
2-Hexanone	ND	0.433	8.69		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Isopropylbenzene	ND	0.219	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
4-Isopropyltoluene	ND	0.326	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
4-Methyl-2-pentanone	ND	3.47	8.69		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Methylene chloride	ND	1.74	2.61		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
n-Butylbenzene	ND	0.423	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
n-Propylbenzene	ND	0.311	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
sec-Butylbenzene	ND	0.308	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Styrene	ND	0.222	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
tert-Butylbenzene	ND	0.254	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-4 (18-20')

Project: North Drainage Ditch

Collection Date: 5/23/2016 11:45:00 AM

Lab ID: 1605B47-005

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Tetrachloroethene (PCE)	ND	0.228	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
trans-1,2-DCE	ND	0.176	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
trans-1,3-Dichloropropene	ND	0.210	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.420	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.527	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1,1-Trichloroethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,1,2-Trichloroethane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Trichloroethene (TCE)	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Trichlorofluoromethane	ND	0.218	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
1,2,3-Trichloropropane	ND	1.74	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Vinyl chloride	ND	0.457	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Xylenes, Total	ND	0.692	1.74		µg/Kg-dry	1	5/26/2016 7:00:00 PM	25524
Surr: 1,2-Dichloroethane-d4	97.1	0	70-130		%Rec	1	5/26/2016 7:00:00 PM	25524
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/26/2016 7:00:00 PM	25524
Surr: Dibromofluoromethane	88.1	0	70-130		%Rec	1	5/26/2016 7:00:00 PM	25524
Surr: Toluene-d8	96.2	0	70-130		%Rec	1	5/26/2016 7:00:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:00:00 PM

Lab ID: 1605B47-006

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	27	4.9	14		mg/Kg-dr	1	6/1/2016 10:41:34 PM	25570
Motor Oil Range Organics (MRO)	ND	68	68		mg/Kg-dr	1	6/1/2016 10:41:34 PM	25570
Surr: DNOP	90.0	0	70-130		%Rec	1	6/1/2016 10:41:34 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.90	4.4		mg/Kg-dr	1	6/2/2016 12:05:31 AM	25547
Surr: BFB	119	0	80-120		%Rec	1	6/2/2016 12:05:31 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	28	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.045	0.00078	0.045		mg/Kg-dr	1	6/2/2016 11:03:21 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	3.4	3.3	6.9	J	mg/Kg-dr	2	6/23/2016 11:07:52 AM	25603
Arsenic	3.8	1.0	3.5		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Barium	450	0.13	0.28		mg/Kg-dr	2	6/2/2016 4:16:57 PM	25603
Beryllium	1.4	0.0064	0.21		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Cadmium	ND	0.088	0.14		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Chromium	16	0.17	0.42		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Cobalt	6.6	0.053	0.42		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Iron	21000	140	350		mg/Kg-dr	100	6/2/2016 2:47:05 PM	25603
Lead	12	0.24	0.35		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Manganese	660	0.12	0.28		mg/Kg-dr	2	6/2/2016 4:16:57 PM	25603
Nickel	16	0.16	0.69		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Selenium	ND	1.5	3.5		mg/Kg-dr	1	6/5/2016 1:46:33 PM	25603
Silver	ND	0.044	0.35		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Vanadium	30	0.048	3.5		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
Zinc	55	0.79	3.5		mg/Kg-dr	1	6/2/2016 4:15:07 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Aniline	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Anthracene	ND	0.091	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Azobenzene	ND	0.17	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benz(a)anthracene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602

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
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:00:00 PM

Lab ID: 1605B47-006

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.11	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Benzyl alcohol	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Bis(2-chloroethoxy)methane	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Bis(2-chloroethyl)ether	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Bis(2-ethylhexyl)phthalate	0.17	0.11	0.68	J	mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Carbazole	ND	0.092	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Chloro-3-methylphenol	ND	0.16	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Chloroaniline	ND	0.15	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2-Chloronaphthalene	ND	0.11	0.34		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Chlorophenyl phenyl ether	ND	0.16	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Chrysene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Di-n-butyl phthalate	ND	0.10	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Di-n-octyl phthalate	ND	0.12	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Dibenzofuran	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
1,3-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
1,4-Dichlorobenzene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
3,3'-Dichlorobenzidine	ND	0.10	0.34		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4-Dichlorophenol	ND	0.13	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4-Dimethylphenol	ND	0.15	0.41		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.083	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4-Dinitrophenol	ND	0.091	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4-Dinitrotoluene	ND	0.12	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,6-Dinitrotoluene	ND	0.14	0.68		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Fluoranthene	ND	0.079	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Fluorene	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Hexachlorocyclopentadiene	ND	0.16	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Hexachloroethane	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
1-Methylnaphthalene	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:00:00 PM

Lab ID: 1605B47-006

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2-Methylphenol	ND	0.11	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
3+4-Methylphenol	ND	0.099	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2-Nitroaniline	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Nitroaniline	ND	0.096	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Nitrobenzene	ND	0.14	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2-Nitrophenol	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
4-Nitrophenol	ND	0.10	0.34		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Pentachlorophenol	ND	0.088	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Phenanthrene	ND	0.093	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Phenol	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Pyridine	ND	0.11	0.55		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
1,2,4-Trichlorobenzene	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4,5-Trichlorophenol	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 7:02:42 PM	25602
Surr: 2-Fluorophenol	62.2	0	28.3-102		%Rec	1	6/7/2016 7:02:42 PM	25602
Surr: Phenol-d5	76.0	0	35.7-103		%Rec	1	6/7/2016 7:02:42 PM	25602
Surr: 2,4,6-Tribromophenol	153	0	35.2-108	S	%Rec	1	6/7/2016 7:02:42 PM	25602
Surr: Nitrobenzene-d5	79.5		24-118		%Rec	1	6/7/2016 7:02:42 PM	25602
Surr: 2-Fluorobiphenyl	85.7		35.4-111		%Rec	1	6/7/2016 7:02:42 PM	25602
Surr: 4-Terphenyl-d14	61.5		15-91.7		%Rec	1	6/7/2016 7:02:42 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Toluene	0.572	0.261	2.16	J	µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Ethylbenzene	ND	0.290	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.363	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.366	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.356	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Naphthalene	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1-Methylnaphthalene	ND	0.246	4.32		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
2-Methylnaphthalene	ND	0.568	4.32		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Acetone	72.3	0.639	10.8		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:00:00 PM

Lab ID: 1605B47-006

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.220	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Bromodichloromethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Bromoform	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Bromomethane	ND	0.389	3.24		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
2-Butanone	4.77	0.779	10.8	J	µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Carbon disulfide	ND	0.799	10.8		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Carbon tetrachloride	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Chlorobenzene	ND	0.248	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Chloroethane	ND	0.399	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Chloroform	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Chloromethane	ND	0.547	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
2-Chlorotoluene	ND	0.367	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
4-Chlorotoluene	ND	0.359	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
cis-1,2-DCE	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
cis-1,3-Dichloropropene	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.230	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Dibromochloromethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Dibromomethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2-Dichlorobenzene	ND	0.315	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,3-Dichlorobenzene	ND	0.399	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,4-Dichlorobenzene	ND	0.404	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Dichlorodifluoromethane	ND	1.26	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1-Dichloroethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1-Dichloroethene	ND	0.354	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2-Dichloropropane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,3-Dichloropropane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
2,2-Dichloropropane	ND	0.273	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1-Dichloropropene	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Hexachlorobutadiene	ND	0.492	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
2-Hexanone	ND	0.538	10.8		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Isopropylbenzene	ND	0.272	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
4-Isopropyltoluene	ND	0.405	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
4-Methyl-2-pentanone	ND	4.32	10.8		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Methylene chloride	ND	2.16	3.24		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
n-Butylbenzene	ND	0.526	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
n-Propylbenzene	ND	0.387	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
sec-Butylbenzene	ND	0.383	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Styrene	ND	0.276	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
tert-Butylbenzene	ND	0.316	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:00:00 PM

Lab ID: 1605B47-006

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Tetrachloroethene (PCE)	ND	0.284	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
trans-1,2-DCE	ND	0.218	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
trans-1,3-Dichloropropene	ND	0.261	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.523	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.655	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1,1-Trichloroethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,1,2-Trichloroethane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Trichloroethene (TCE)	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Trichlorofluoromethane	ND	0.271	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
1,2,3-Trichloropropane	ND	2.16	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Vinyl chloride	ND	0.568	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Xylenes, Total	ND	0.861	2.16		µg/Kg-dry	1	5/26/2016 7:25:00 PM	25524
Surr: 1,2-Dichloroethane-d4	98.7	0	70-130		%Rec	1	5/26/2016 7:25:00 PM	25524
Surr: 4-Bromofluorobenzene	110	0	70-130		%Rec	1	5/26/2016 7:25:00 PM	25524
Surr: Dibromofluoromethane	91.4	0	70-130		%Rec	1	5/26/2016 7:25:00 PM	25524
Surr: Toluene-d8	101	0	70-130		%Rec	1	5/26/2016 7:25:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:15:00 PM

Lab ID: 1605B47-007

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME	
Diesel Range Organics (DRO)	16000	430	1200		mg/Kg-dr	100	6/2/2016 2:54:57 PM	25570
Motor Oil Range Organics (MRO)	ND	6000	6000		mg/Kg-dr	100	6/2/2016 2:54:57 PM	25570
Surr: DNOP	0	0	70-130	S	%Rec	100	6/2/2016 2:54:57 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	280	15	74		mg/Kg-dr	20	6/2/2016 1:47:25 PM	25569
Surr: BFB	117	0	80-120		%Rec	20	6/2/2016 1:47:25 PM	25569
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	22	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.021	0.00073	0.043	J	mg/Kg-dr	1	6/2/2016 11:08:49 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	3.7	3.1	6.5	J	mg/Kg-dr	2	6/23/2016 11:10:21 AM	25603
Arsenic	2.2	0.94	3.2	J	mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Barium	480	0.13	0.26		mg/Kg-dr	2	6/2/2016 4:20:28 PM	25603
Beryllium	1.1	0.0060	0.19		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Cadmium	ND	0.082	0.13		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Chromium	11	0.16	0.39		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Cobalt	5.8	0.049	0.39		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Iron	18000	130	320		mg/Kg-dr	100	6/2/2016 2:57:45 PM	25603
Lead	9.0	0.23	0.32		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Manganese	410	0.11	0.26		mg/Kg-dr	2	6/2/2016 4:20:28 PM	25603
Nickel	11	0.15	0.65		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Selenium	ND	1.4	3.2		mg/Kg-dr	1	6/5/2016 1:48:01 PM	25603
Silver	ND	0.041	0.32		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Vanadium	21	0.045	3.2		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
Zinc	21	0.74	3.2		mg/Kg-dr	1	6/2/2016 4:18:41 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Aniline	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Anthracene	ND	0.084	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benzo(a)pyrene	ND	0.096	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:15:00 PM

Lab ID: 1605B47-007

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.11	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Benzyl alcohol	ND	0.099	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Bis(2-chloroethoxy)methane	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Bis(2-chloroethyl)ether	ND	0.093	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Bis(2-ethylhexyl)phthalate	0.20	0.10	0.64	J	mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Carbazole	ND	0.086	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Chloro-3-methylphenol	ND	0.15	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Chloroaniline	ND	0.14	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2-Chloronaphthalene	ND	0.10	0.32		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2-Chlorophenol	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Chlorophenyl phenyl ether	ND	0.15	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Di-n-butyl phthalate	ND	0.095	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Di-n-octyl phthalate	ND	0.11	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Dibenzofuran	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
1,2-Dichlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
1,3-Dichlorobenzene	ND	0.098	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
1,4-Dichlorobenzene	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
3,3'-Dichlorobenzidine	ND	0.094	0.32		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4-Dichlorophenol	ND	0.12	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4-Dimethylphenol	ND	0.14	0.38		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.077	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4-Dinitrophenol	ND	0.084	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,6-Dinitrotoluene	ND	0.13	0.64		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Fluoranthene	ND	0.073	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Fluorene	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Hexachlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Hexachlorocyclopentadiene	ND	0.15	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.099	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
1-Methylnaphthalene	12	6.4	13	JD	mg/Kg-dr	50	6/9/2016 4:37:27 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:15:00 PM

Lab ID: 1605B47-007

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	12	7.5	13	JD	mg/Kg-dr	50	6/9/2016 4:37:27 PM	25602
2-Methylphenol	ND	0.11	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
3+4-Methylphenol	ND	0.092	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Naphthalene	4.2	0.12	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2-Nitroaniline	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Nitroaniline	ND	0.090	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Nitrobenzene	ND	0.13	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2-Nitrophenol	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
4-Nitrophenol	ND	0.097	0.32		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Pentachlorophenol	ND	0.082	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Phenanthrene	0.68	0.086	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Phenol	ND	0.096	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Pyrene	ND	0.096	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Pyridine	ND	0.10	0.51		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
1,2,4-Trichlorobenzene	ND	0.14	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4,5-Trichlorophenol	ND	0.13	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
2,4,6-Trichlorophenol	ND	0.11	0.25		mg/Kg-dr	1	6/7/2016 7:34:07 PM	25602
Surr: 2-Fluorophenol	41.2	0	28.3-102		%Rec	1	6/7/2016 7:34:07 PM	25602
Surr: Phenol-d5	46.5	0	35.7-103		%Rec	1	6/7/2016 7:34:07 PM	25602
Surr: 2,4,6-Tribromophenol	108	0	35.2-108		%Rec	1	6/7/2016 7:34:07 PM	25602
Surr: Nitrobenzene-d5	0		24-118	S	%Rec	1	6/7/2016 7:34:07 PM	25602
Surr: 2-Fluorobiphenyl	63.9		35.4-111		%Rec	1	6/7/2016 7:34:07 PM	25602
Surr: 4-Terphenyl-d14	68.8		15-91.7		%Rec	1	6/7/2016 7:34:07 PM	25602
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	0.91	0.30	0.37		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Toluene	0.53	0.044	0.74	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Ethylbenzene	1.0	0.060	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Methyl tert-butyl ether (MTBE)	ND	0.23	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2,4-Trimethylbenzene	10	0.054	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,3,5-Trimethylbenzene	5.7	0.054	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2-Dichloroethane (EDC)	ND	0.19	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2-Dibromoethane (EDB)	ND	0.052	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Naphthalene	7.3	0.12	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1-Methylnaphthalene	11	0.16	3.0		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
2-Methylnaphthalene	11	0.16	3.0		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Acetone	ND	0.95	11		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:15:00 PM

Lab ID: 1605B47-007

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Bromobenzene	ND	0.059	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Bromodichloromethane	ND	0.043	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Bromoform	ND	0.090	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Bromomethane	ND	0.27	2.2		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
2-Butanone	0.66	0.42	7.4	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Carbon disulfide	ND	0.24	7.4		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Carbon tetrachloride	ND	0.048	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Chlorobenzene	ND	0.060	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Chloroethane	ND	0.15	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Chloroform	ND	0.056	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Chloromethane	ND	0.066	2.2		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
2-Chlorotoluene	ND	0.054	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
4-Chlorotoluene	ND	0.065	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
cis-1,2-DCE	ND	0.043	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
cis-1,3-Dichloropropene	ND	0.068	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2-Dibromo-3-chloropropane	ND	0.23	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Dibromochloromethane	ND	0.067	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Dibromomethane	ND	0.064	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2-Dichlorobenzene	ND	0.064	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,3-Dichlorobenzene	ND	0.060	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,4-Dichlorobenzene	ND	0.091	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Dichlorodifluoromethane	ND	0.23	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1-Dichloroethane	ND	0.040	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1-Dichloroethene	ND	0.24	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2-Dichloropropane	ND	0.062	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,3-Dichloropropane	ND	0.084	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
2,2-Dichloropropane	ND	0.042	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1-Dichloropropene	ND	0.059	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Hexachlorobutadiene	ND	0.090	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
2-Hexanone	ND	0.40	7.4		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Isopropylbenzene	0.22	0.063	0.74	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
4-Isopropyltoluene	0.58	0.066	0.74	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
4-Methyl-2-pentanone	ND	0.22	7.4		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Methylene chloride	ND	0.21	2.2		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
n-Butylbenzene	0.64	0.065	2.2	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
n-Propylbenzene	0.43	0.057	0.74	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
sec-Butylbenzene	0.42	0.10	0.74	J	mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Styrene	ND	0.066	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
tert-Butylbenzene	ND	0.061	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:15:00 PM

Lab ID: 1605B47-007

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
1,1,1,2-Tetrachloroethane	ND	0.071	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1,2,2-Tetrachloroethane	ND	0.12	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Tetrachloroethene (PCE)	ND	0.061	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
trans-1,2-DCE	ND	0.21	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
trans-1,3-Dichloropropene	ND	0.11	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2,3-Trichlorobenzene	ND	0.11	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2,4-Trichlorobenzene	ND	0.079	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1,1-Trichloroethane	ND	0.045	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,1,2-Trichloroethane	ND	0.087	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Trichloroethene (TCE)	ND	0.079	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Trichlorofluoromethane	ND	0.055	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
1,2,3-Trichloropropane	ND	0.13	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Vinyl chloride	ND	0.060	0.74		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Xylenes, Total	17	0.14	1.5		mg/Kg-dr	20	6/1/2016 3:39:37 PM	A34608
Surr: Dibromofluoromethane	79.0		70-130		%Rec	20	6/1/2016 3:39:37 PM	A34608
Surr: 1,2-Dichloroethane-d4	87.8		70-130		%Rec	20	6/1/2016 3:39:37 PM	A34608
Surr: Toluene-d8	97.5		70-130		%Rec	20	6/1/2016 3:39:37 PM	A34608
Surr: 4-Bromofluorobenzene	82.3		70-130		%Rec	20	6/1/2016 3:39:37 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (4-6')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:40:00 PM

Lab ID: 1605B47-008

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME	
Diesel Range Organics (DRO)	5000	45	120		mg/Kg-dr	10	6/2/2016 1:49:28 PM	25570
Motor Oil Range Organics (MRO)	ND	620	620		mg/Kg-dr	10	6/2/2016 1:49:28 PM	25570
Surr: DNOP	0	0	70-130	S	%Rec	10	6/2/2016 1:49:28 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	660	6.6	32		mg/Kg-dr	10	6/2/2016 12:52:14 AM	25547
Surr: BFB	233	0	80-120	S	%Rec	10	6/2/2016 12:52:14 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	19	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0053	0.00070	0.041	J	mg/Kg-dr	1	6/2/2016 11:10:35 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.9	6.2		mg/Kg-dr	2	6/15/2016 7:32:01 AM	25603
Arsenic	2.0	0.90	3.1	J	mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Barium	460	0.12	0.25		mg/Kg-dr	2	6/2/2016 4:24:22 PM	25603
Beryllium	0.89	0.0057	0.19		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Chromium	8.6	0.15	0.37		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Cobalt	4.7	0.047	0.37		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Iron	15000	120	310		mg/Kg-dr	100	6/2/2016 2:59:16 PM	25603
Lead	5.2	0.22	0.31		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Manganese	490	0.11	0.25		mg/Kg-dr	2	6/2/2016 4:24:22 PM	25603
Nickel	8.1	0.14	0.62		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Selenium	ND	1.3	3.1		mg/Kg-dr	1	6/5/2016 1:49:27 PM	25603
Silver	ND	0.039	0.31		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Vanadium	20	0.043	3.1		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
Zinc	15	0.70	3.1		mg/Kg-dr	1	6/2/2016 4:22:36 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	5.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Acenaphthylene	ND	4.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Aniline	ND	5.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Anthracene	ND	4.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Azobenzene	ND	7.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benz(a)anthracene	ND	5.2	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benzo(a)pyrene	ND	4.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benzo(b)fluoranthene	ND	5.4	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benzo(g,h,i)perylene	ND	5.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benzo(k)fluoranthene	ND	5.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (4-6')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:40:00 PM

Lab ID: 1605B47-008

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	5.0	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Benzyl alcohol	ND	4.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Bis(2-chloroethoxy)methane	ND	6.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Bis(2-chloroethyl)ether	ND	4.4	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Bis(2-chloroisopropyl)ether	ND	5.4	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Bis(2-ethylhexyl)phthalate	ND	4.9	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Bromophenyl phenyl ether	ND	5.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Butyl benzyl phthalate	ND	5.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Carbazole	ND	4.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Chloro-3-methylphenol	ND	7.2	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Chloroaniline	ND	6.5	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Chloronaphthalene	ND	4.7	15	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Chlorophenol	ND	4.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Chlorophenyl phenyl ether	ND	6.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Chrysene	ND	5.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Di-n-butyl phthalate	ND	4.5	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Di-n-octyl phthalate	ND	5.1	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Dibenz(a,h)anthracene	ND	4.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Dibenzofuran	ND	6.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
1,2-Dichlorobenzene	ND	4.6	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
1,3-Dichlorobenzene	ND	4.6	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
1,4-Dichlorobenzene	ND	5.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
3,3'-Dichlorobenzidine	ND	4.4	15	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Diethyl phthalate	ND	6.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Dimethyl phthalate	ND	5.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4-Dichlorophenol	ND	5.6	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4-Dimethylphenol	ND	6.5	18	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4,6-Dinitro-2-methylphenol	ND	3.6	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4-Dinitrophenol	ND	4.0	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4-Dinitrotoluene	ND	5.4	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,6-Dinitrotoluene	ND	6.4	30	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Fluoranthene	ND	3.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Fluorene	ND	5.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Hexachlorobenzene	ND	4.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Hexachlorobutadiene	ND	6.8	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Hexachlorocyclopentadiene	ND	6.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Hexachloroethane	ND	5.2	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Indeno(1,2,3-cd)pyrene	ND	4.7	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Isophorone	ND	6.6	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (4-6')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:40:00 PM

Lab ID: 1605B47-008

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1-Methylnaphthalene	ND	6.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Methylnaphthalene	ND	7.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Methylphenol	ND	5.0	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
3+4-Methylphenol	ND	4.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
N-Nitrosodi-n-propylamine	ND	5.8	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
N-Nitrosodiphenylamine	ND	5.9	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Naphthalene	ND	5.8	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Nitroaniline	ND	6.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
3-Nitroaniline	ND	5.3	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Nitroaniline	ND	4.2	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Nitrobenzene	ND	6.2	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2-Nitrophenol	ND	6.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
4-Nitrophenol	ND	4.6	15	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Pentachlorophenol	ND	3.9	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Phenanthrene	ND	4.1	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Phenol	ND	4.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Pyrene	ND	4.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Pyridine	ND	4.8	24	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
1,2,4-Trichlorobenzene	ND	6.5	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4,5-Trichlorophenol	ND	6.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
2,4,6-Trichlorophenol	ND	5.0	12	D	mg/Kg-dr	50	6/9/2016 5:07:36 PM	25602
Surr: 2-Fluorophenol	73.6	0	28.3-102	D	%Rec	50	6/9/2016 5:07:36 PM	25602
Surr: Phenol-d5	73.1	0	35.7-103	D	%Rec	50	6/9/2016 5:07:36 PM	25602
Surr: 2,4,6-Tribromophenol	159	0	35.2-108	SD	%Rec	50	6/9/2016 5:07:36 PM	25602
Surr: Nitrobenzene-d5	0		24-118	SD	%Rec	50	6/9/2016 5:07:36 PM	25602
Surr: 2-Fluorobiphenyl	206		35.4-111	SD	%Rec	50	6/9/2016 5:07:36 PM	25602
Surr: 4-Terphenyl-d14	264		15-91.7	SD	%Rec	50	6/9/2016 5:07:36 PM	25602
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	0.53	0.26	0.32		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Toluene	0.25	0.038	0.64	J	mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Ethylbenzene	ND	0.052	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Methyl tert-butyl ether (MTBE)	ND	0.20	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2,4-Trimethylbenzene	16	0.047	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,3,5-Trimethylbenzene	12	0.046	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2-Dichloroethane (EDC)	ND	0.17	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2-Dibromoethane (EDB)	ND	0.045	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Naphthalene	5.3	0.10	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1-Methylnaphthalene	11	0.14	2.6		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
2-Methylnaphthalene	7.3	0.14	2.6		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (4-6')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:40:00 PM

Lab ID: 1605B47-008

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Acetone	ND	0.83	9.6		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Bromobenzene	ND	0.052	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Bromodichloromethane	ND	0.037	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Bromoform	ND	0.078	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Bromomethane	ND	0.24	1.9		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
2-Butanone	ND	0.37	6.4		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Carbon disulfide	ND	0.21	6.4		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Carbon tetrachloride	ND	0.042	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Chlorobenzene	ND	0.052	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Chloroethane	ND	0.13	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Chloroform	ND	0.048	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Chloromethane	ND	0.057	1.9		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
2-Chlorotoluene	ND	0.047	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
4-Chlorotoluene	ND	0.057	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
cis-1,2-DCE	ND	0.037	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
cis-1,3-Dichloropropene	ND	0.059	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2-Dibromo-3-chloropropane	ND	0.20	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Dibromochloromethane	ND	0.058	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Dibromomethane	ND	0.055	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2-Dichlorobenzene	ND	0.056	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,3-Dichlorobenzene	ND	0.052	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,4-Dichlorobenzene	ND	0.079	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Dichlorodifluoromethane	ND	0.20	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1-Dichloroethane	ND	0.035	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1-Dichloroethene	ND	0.21	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2-Dichloropropane	ND	0.054	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,3-Dichloropropane	ND	0.073	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
2,2-Dichloropropane	ND	0.037	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1-Dichloropropene	ND	0.051	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Hexachlorobutadiene	ND	0.078	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
2-Hexanone	ND	0.35	6.4		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Isopropylbenzene	ND	0.055	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
4-Isopropyltoluene	0.82	0.057	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
4-Methyl-2-pentanone	ND	0.19	6.4		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Methylene chloride	ND	0.18	1.9		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
n-Butylbenzene	0.36	0.057	1.9	J	mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
n-Propylbenzene	ND	0.049	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
sec-Butylbenzene	0.33	0.089	0.64	J	mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Styrene	ND	0.057	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (4-6')

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:40:00 PM

Lab ID: 1605B47-008

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
tert-Butylbenzene	ND	0.053	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1,1,2-Tetrachloroethane	ND	0.061	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1,2,2-Tetrachloroethane	ND	0.10	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Tetrachloroethene (PCE)	ND	0.053	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
trans-1,2-DCE	ND	0.18	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
trans-1,3-Dichloropropene	ND	0.094	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2,3-Trichlorobenzene	ND	0.096	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2,4-Trichlorobenzene	ND	0.068	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1,1-Trichloroethane	ND	0.039	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,1,2-Trichloroethane	ND	0.075	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Trichloroethene (TCE)	ND	0.069	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Trichlorofluoromethane	ND	0.048	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
1,2,3-Trichloropropane	ND	0.11	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Vinyl chloride	ND	0.052	0.64		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Xylenes, Total	22	0.12	1.3		mg/Kg-dr	20	6/1/2016 5:34:48 PM	A34608
Surr: Dibromofluoromethane	71.4		70-130		%Rec	20	6/1/2016 5:34:48 PM	A34608
Surr: 1,2-Dichloroethane-d4	92.6		70-130		%Rec	20	6/1/2016 5:34:48 PM	A34608
Surr: Toluene-d8	99.6		70-130		%Rec	20	6/1/2016 5:34:48 PM	A34608
Surr: 4-Bromofluorobenzene	76.7		70-130		%Rec	20	6/1/2016 5:34:48 PM	A34608

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (10-12")

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:55:00 PM

Lab ID: 1605B47-009

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME	
Diesel Range Organics (DRO)	18	3.9	11		mg/Kg-dr	1	6/2/2016 2:11:12 PM	25570
Motor Oil Range Organics (MRO)	ND	55	55		mg/Kg-dr	1	6/2/2016 2:11:12 PM	25570
Surr: DNOP	78.6	0	70-130		%Rec	1	6/2/2016 2:11:12 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	39	0.88	4.3		mg/Kg-dr	1	6/2/2016 2:10:56 PM	25569
Surr: BFB	174	0	80-120	S	%Rec	1	6/2/2016 2:10:56 PM	25569
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	15	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0024	0.00065	0.038	J	mg/Kg-dr	1	6/2/2016 11:12:21 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.9		mg/Kg-dr	2	6/15/2016 7:33:17 AM	25603
Arsenic	4.3	0.86	2.9		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Barium	2200	0.57	1.2		mg/Kg-dr	10	6/5/2016 1:52:26 PM	25603
Beryllium	1.0	0.0054	0.18		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Cadmium	ND	0.075	0.12		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Chromium	8.3	0.15	0.35		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Cobalt	4.0	0.045	0.35		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Iron	17000	110	290		mg/Kg-dr	100	6/2/2016 3:00:46 PM	25603
Lead	4.0	0.21	0.29		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Manganese	1600	0.52	1.2		mg/Kg-dr	10	6/5/2016 1:52:26 PM	25603
Nickel	8.6	0.13	0.59		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/5/2016 1:50:53 PM	25603
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Vanadium	9.8	0.041	2.9		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
Zinc	14	0.67	2.9		mg/Kg-dr	1	6/2/2016 4:26:30 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Acenaphthylene	ND	0.095	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Aniline	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Anthracene	ND	0.077	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benz(a)anthracene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benzo(a)pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (10-12")

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:55:00 PM

Lab ID: 1605B47-009

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.097	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Benzyl alcohol	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Bis(2-chloroethyl)ether	ND	0.086	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Bis(2-ethylhexyl)phthalate	0.16	0.095	0.58	J	mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Carbazole	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Chloroaniline	ND	0.13	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2-Chloronaphthalene	ND	0.092	0.29		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2-Chlorophenol	ND	0.092	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Chrysene	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Di-n-butyl phthalate	ND	0.087	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Di-n-octyl phthalate	ND	0.099	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Dibenz(a,h)anthracene	ND	0.094	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Dibenzofuran	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
1,2-Dichlorobenzene	ND	0.089	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
1,3-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
1,4-Dichlorobenzene	ND	0.098	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
3,3'-Dichlorobenzidine	ND	0.086	0.29		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.070	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4-Dinitrophenol	ND	0.077	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4-Dinitrotoluene	ND	0.10	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.58		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Fluoranthene	ND	0.067	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Fluorene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Hexachlorobenzene	ND	0.092	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Hexachloroethane	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
1-Methylnaphthalene	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602

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Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (10-12")

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:55:00 PM

Lab ID: 1605B47-009

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2-Methylphenol	ND	0.097	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
3+4-Methylphenol	ND	0.084	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2-Nitroaniline	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Nitroaniline	ND	0.082	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2-Nitrophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
4-Nitrophenol	ND	0.089	0.29		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Pentachlorophenol	ND	0.075	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Phenanthrene	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Phenol	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Pyridine	ND	0.092	0.47		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
2,4,6-Trichlorophenol	ND	0.097	0.23		mg/Kg-dr	1	6/7/2016 4:26:45 PM	25602
Surr: 2-Fluorophenol	50.0	0	28.3-102		%Rec	1	6/7/2016 4:26:45 PM	25602
Surr: Phenol-d5	62.9	0	35.7-103		%Rec	1	6/7/2016 4:26:45 PM	25602
Surr: 2,4,6-Tribromophenol	62.0	0	35.2-108		%Rec	1	6/7/2016 4:26:45 PM	25602
Surr: Nitrobenzene-d5	62.2		24-118		%Rec	1	6/7/2016 4:26:45 PM	25602
Surr: 2-Fluorobiphenyl	66.7		35.4-111		%Rec	1	6/7/2016 4:26:45 PM	25602
Surr: 4-Terphenyl-d14	50.3		15-91.7		%Rec	1	6/7/2016 4:26:45 PM	25602
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	0.024	0.017	0.021		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Toluene	0.014	0.0025	0.043	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Ethylbenzene	0.083	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Methyl tert-butyl ether (MTBE)	ND	0.013	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2,4-Trimethylbenzene	0.52	0.0031	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,3,5-Trimethylbenzene	0.15	0.0031	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2-Dichloroethane (EDC)	ND	0.011	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2-Dibromoethane (EDB)	ND	0.0030	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Naphthalene	0.096	0.0067	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1-Methylnaphthalene	0.13	0.0095	0.17	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
2-Methylnaphthalene	0.16	0.0092	0.17	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Acetone	ND	0.055	0.64		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-6 (10-12")

Project: North Drainage Ditch

Collection Date: 5/23/2016 1:55:00 PM

Lab ID: 1605B47-009

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Bromobenzene	ND	0.0034	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Bromodichloromethane	ND	0.0025	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Bromoform	ND	0.0052	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Bromomethane	0.029	0.016	0.13	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
2-Butanone	ND	0.024	0.43		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Carbon disulfide	ND	0.014	0.43		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Carbon tetrachloride	ND	0.0028	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Chlorobenzene	ND	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Chloroethane	ND	0.0085	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Chloroform	ND	0.0032	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Chloromethane	ND	0.0038	0.13		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
2-Chlorotoluene	ND	0.0032	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
4-Chlorotoluene	ND	0.0038	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
cis-1,2-DCE	ND	0.0025	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
cis-1,3-Dichloropropene	ND	0.0039	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2-Dibromo-3-chloropropane	ND	0.013	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Dibromochloromethane	ND	0.0039	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Dibromomethane	ND	0.0037	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2-Dichlorobenzene	ND	0.0037	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,3-Dichlorobenzene	ND	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,4-Dichlorobenzene	ND	0.0053	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Dichlorodifluoromethane	ND	0.013	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1-Dichloroethane	ND	0.0023	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1-Dichloroethene	ND	0.014	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2-Dichloropropane	ND	0.0036	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,3-Dichloropropane	ND	0.0048	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
2,2-Dichloropropane	ND	0.0024	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1-Dichloropropene	ND	0.0034	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Hexachlorobutadiene	ND	0.0052	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
2-Hexanone	ND	0.023	0.43		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Isopropylbenzene	0.046	0.0037	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
4-Isopropyltoluene	0.026	0.0038	0.043	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
4-Methyl-2-pentanone	ND	0.012	0.43		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Methylene chloride	ND	0.012	0.13		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
n-Butylbenzene	0.090	0.0038	0.13	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
n-Propylbenzene	0.093	0.0033	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
sec-Butylbenzene	0.036	0.0059	0.043	J	mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Styrene	ND	0.0038	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
tert-Butylbenzene	ND	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company**Client Sample ID:** NDD-6 (10-12")**Project:** North Drainage Ditch**Collection Date:** 5/23/2016 1:55:00 PM**Lab ID:** 1605B47-009**Matrix:** SOIL**Received Date:** 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
1,1,1,2-Tetrachloroethane	ND	0.0041	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1,2,2-Tetrachloroethane	ND	0.0069	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Tetrachloroethene (PCE)	ND	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
trans-1,2-DCE	ND	0.012	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
trans-1,3-Dichloropropene	ND	0.0063	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2,3-Trichlorobenzene	ND	0.0064	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2,4-Trichlorobenzene	ND	0.0046	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1,1-Trichloroethane	ND	0.0026	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,1,2-Trichloroethane	ND	0.0050	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Trichloroethene (TCE)	ND	0.0046	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Trichlorofluoromethane	ND	0.0032	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
1,2,3-Trichloropropane	ND	0.0074	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Vinyl chloride	ND	0.0035	0.043		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Xylenes, Total	0.48	0.0081	0.085		mg/Kg-dr	1	6/1/2016 6:03:32 PM	A34608
Surr: Dibromofluoromethane	79.1		70-130		%Rec	1	6/1/2016 6:03:32 PM	A34608
Surr: 1,2-Dichloroethane-d4	98.5		70-130		%Rec	1	6/1/2016 6:03:32 PM	A34608
Surr: Toluene-d8	99.2		70-130		%Rec	1	6/1/2016 6:03:32 PM	A34608
Surr: 4-Bromofluorobenzene	85.1		70-130		%Rec	1	6/1/2016 6:03:32 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:00:00 PM

Lab ID: 1605B47-010

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.5	9.8		mg/Kg-dr	1	6/2/2016 12:29:13 AM	25570
Motor Oil Range Organics (MRO)	ND	49	49		mg/Kg-dr	1	6/2/2016 12:29:13 AM	25570
Surr: DNOP	101	0	70-130		%Rec	1	6/2/2016 12:29:13 AM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.84	4.1		mg/Kg-dr	1	6/2/2016 1:39:03 AM	25547
Surr: BFB	120	0	80-120	S	%Rec	1	6/2/2016 1:39:03 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	6.4	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.013	0.00059	0.034	J	mg/Kg-dr	1	6/2/2016 11:14:08 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.6	5.4		mg/Kg-dr	2	6/15/2016 7:34:32 AM	25603
Arsenic	2.6	0.79	2.7	J	mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Barium	730	0.26	0.54		mg/Kg-dr	5	6/5/2016 1:55:21 PM	25603
Beryllium	0.64	0.0050	0.16		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Cadmium	ND	0.068	0.11		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Chromium	6.4	0.13	0.32		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Cobalt	4.2	0.041	0.32		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Iron	13000	110	270		mg/Kg-dr	100	6/2/2016 3:02:22 PM	25603
Lead	6.1	0.19	0.27		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Manganese	1300	0.24	0.54		mg/Kg-dr	5	6/5/2016 1:55:21 PM	25603
Nickel	6.5	0.12	0.54		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Selenium	ND	1.2	2.7		mg/Kg-dr	1	6/5/2016 1:53:49 PM	25603
Silver	ND	0.034	0.27		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Vanadium	23	0.037	2.7		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
Zinc	13	0.61	2.7		mg/Kg-dr	1	6/2/2016 4:37:55 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.091	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Acenaphthylene	ND	0.087	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Aniline	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Anthracene	ND	0.071	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Azobenzene	ND	0.13	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benz(a)anthracene	ND	0.092	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benzo(a)pyrene	ND	0.081	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benzo(b)fluoranthene	ND	0.096	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benzo(g,h,i)perylene	ND	0.094	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benzo(k)fluoranthene	ND	0.094	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:00:00 PM

Lab ID: 1605B47-010

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.088	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Benzyl alcohol	ND	0.083	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Bis(2-chloroethoxy)methane	ND	0.12	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Bis(2-chloroethyl)ether	ND	0.078	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.095	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Bis(2-ethylhexyl)phthalate	0.15	0.087	0.53	J	mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Bromophenyl phenyl ether	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Butyl benzyl phthalate	ND	0.094	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Carbazole	ND	0.072	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Chloro-3-methylphenol	ND	0.13	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Chloroaniline	ND	0.12	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2-Chloronaphthalene	ND	0.084	0.27		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2-Chlorophenol	ND	0.084	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Chlorophenyl phenyl ether	ND	0.12	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Chrysene	ND	0.091	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Di-n-butyl phthalate	0.11	0.080	0.43	J	mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Di-n-octyl phthalate	ND	0.091	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Dibenz(a,h)anthracene	ND	0.086	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Dibenzofuran	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
1,2-Dichlorobenzene	ND	0.081	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
1,3-Dichlorobenzene	ND	0.082	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
1,4-Dichlorobenzene	ND	0.090	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
3,3'-Dichlorobenzidine	ND	0.078	0.27		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Diethyl phthalate	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Dimethyl phthalate	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4-Dichlorophenol	ND	0.099	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4-Dimethylphenol	ND	0.12	0.32		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.064	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4-Dinitrophenol	ND	0.071	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4-Dinitrotoluene	ND	0.095	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,6-Dinitrotoluene	ND	0.11	0.53		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Fluoranthene	ND	0.061	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Fluorene	ND	0.097	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Hexachlorobenzene	ND	0.084	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Hexachlorobutadiene	ND	0.12	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Hexachlorocyclopentadiene	ND	0.12	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Hexachloroethane	ND	0.091	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.083	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
1-Methylnaphthalene	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:00:00 PM

Lab ID: 1605B47-010

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.13	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2-Methylphenol	ND	0.089	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
3+4-Methylphenol	ND	0.077	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
N-Nitrosodi-n-propylamine	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
N-Nitrosodiphenylamine	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Naphthalene	ND	0.10	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2-Nitroaniline	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
3-Nitroaniline	ND	0.094	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Nitroaniline	ND	0.075	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Nitrobenzene	ND	0.11	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2-Nitrophenol	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
4-Nitrophenol	ND	0.081	0.27		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Pentachlorophenol	ND	0.068	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Phenanthrene	ND	0.072	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Phenol	ND	0.080	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Pyrene	ND	0.080	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Pyridine	ND	0.084	0.43		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
1,2,4-Trichlorobenzene	ND	0.12	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4,5-Trichlorophenol	ND	0.11	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
2,4,6-Trichlorophenol	ND	0.088	0.21		mg/Kg-dr	1	6/7/2016 8:36:50 PM	25602
Surr: 2-Fluorophenol	62.0	0	28.3-102		%Rec	1	6/7/2016 8:36:50 PM	25602
Surr: Phenol-d5	72.7	0	35.7-103		%Rec	1	6/7/2016 8:36:50 PM	25602
Surr: 2,4,6-Tribromophenol	89.3	0	35.2-108		%Rec	1	6/7/2016 8:36:50 PM	25602
Surr: Nitrobenzene-d5	74.4		24-118		%Rec	1	6/7/2016 8:36:50 PM	25602
Surr: 2-Fluorobiphenyl	83.4		35.4-111		%Rec	1	6/7/2016 8:36:50 PM	25602
Surr: 4-Terphenyl-d14	59.0		15-91.7		%Rec	1	6/7/2016 8:36:50 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Toluene	0.732	0.256	2.12	J	µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Ethylbenzene	ND	0.285	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.356	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2,4-Trimethylbenzene	0.647	0.360	2.12	J	µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.350	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Naphthalene	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1-Methylnaphthalene	ND	0.241	4.24		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
2-Methylnaphthalene	ND	0.558	4.24		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Acetone	70.3	0.628	10.6		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:00:00 PM

Lab ID: 1605B47-010

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.216	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Bromodichloromethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Bromoform	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Bromomethane	ND	0.382	3.18		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
2-Butanone	5.54	0.765	10.6	J	µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Carbon disulfide	ND	0.784	10.6		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Carbon tetrachloride	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Chlorobenzene	ND	0.243	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Chloroethane	ND	0.391	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Chloroform	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Chloromethane	ND	0.537	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
2-Chlorotoluene	ND	0.361	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
4-Chlorotoluene	ND	0.353	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
cis-1,2-DCE	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
cis-1,3-Dichloropropene	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.226	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Dibromochloromethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Dibromomethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2-Dichlorobenzene	ND	0.309	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,3-Dichlorobenzene	ND	0.392	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,4-Dichlorobenzene	ND	0.397	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Dichlorodifluoromethane	ND	1.24	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1-Dichloroethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1-Dichloroethene	ND	0.347	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2-Dichloropropane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,3-Dichloropropane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
2,2-Dichloropropane	ND	0.268	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1-Dichloropropene	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Hexachlorobutadiene	ND	0.483	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
2-Hexanone	ND	0.528	10.6		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Isopropylbenzene	ND	0.267	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
4-Isopropyltoluene	ND	0.398	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
4-Methyl-2-pentanone	ND	4.24	10.6		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Methylene chloride	ND	2.12	3.18		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
n-Butylbenzene	ND	0.516	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
n-Propylbenzene	ND	0.380	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
sec-Butylbenzene	ND	0.377	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Styrene	ND	0.271	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
tert-Butylbenzene	ND	0.310	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:00:00 PM

Lab ID: 1605B47-010

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Tetrachloroethene (PCE)	ND	0.279	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
trans-1,2-DCE	ND	0.214	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
trans-1,3-Dichloropropene	ND	0.257	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.513	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.643	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1,1-Trichloroethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,1,2-Trichloroethane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Trichloroethene (TCE)	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Trichlorofluoromethane	ND	0.267	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
1,2,3-Trichloropropane	ND	2.12	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Vinyl chloride	ND	0.558	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Xylenes, Total	ND	0.845	2.12		µg/Kg-dry	1	5/26/2016 7:50:00 PM	25524
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	5/26/2016 7:50:00 PM	25524
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	5/26/2016 7:50:00 PM	25524
Surr: Dibromofluoromethane	92.4	0	70-130		%Rec	1	5/26/2016 7:50:00 PM	25524
Surr: Toluene-d8	98.6	0	70-130		%Rec	1	5/26/2016 7:50:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:15:00 PM

Lab ID: 1605B47-011

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.2	12		mg/Kg-dr	1	6/2/2016 12:50:43 AM	25570
Motor Oil Range Organics (MRO)	ND	58	58		mg/Kg-dr	1	6/2/2016 12:50:43 AM	25570
Surr: DNOP	94.3	0	70-130		%Rec	1	6/2/2016 12:50:43 AM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.78	3.8		mg/Kg-dr	1	6/2/2016 2:02:31 AM	25547
Surr: BFB	117	0	80-120		%Rec	1	6/2/2016 2:02:31 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	15	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.011	0.00067	0.039	J	mg/Kg-dr	1	6/2/2016 11:15:56 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.9		mg/Kg-dr	2	6/15/2016 7:35:48 AM	25603
Arsenic	2.4	0.87	3.0	J	mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Barium	810	0.29	0.59		mg/Kg-dr	5	6/5/2016 2:02:19 PM	25603
Beryllium	0.85	0.0055	0.18		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Cadmium	ND	0.075	0.12		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Chromium	8.1	0.15	0.36		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Cobalt	4.4	0.045	0.36		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Iron	14000	120	300		mg/Kg-dr	100	6/2/2016 3:03:52 PM	25603
Lead	4.7	0.21	0.30		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Manganese	550	0.11	0.24		mg/Kg-dr	2	6/2/2016 4:43:25 PM	25603
Nickel	7.6	0.14	0.59		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/5/2016 1:56:44 PM	25603
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Vanadium	19	0.041	3.0		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
Zinc	14	0.68	3.0		mg/Kg-dr	1	6/2/2016 4:41:42 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Acenaphthylene	ND	0.096	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Aniline	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Anthracene	ND	0.078	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Azobenzene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benzo(a)pyrene	ND	0.089	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:15:00 PM

Lab ID: 1605B47-011

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.098	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Benzyl alcohol	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Bis(2-chloroethyl)ether	ND	0.087	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Bis(2-ethylhexyl)phthalate	0.18	0.096	0.59	J	mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Butyl benzyl phthalate	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Carbazole	ND	0.080	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Chloroaniline	ND	0.13	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2-Chloronaphthalene	ND	0.093	0.29		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2-Chlorophenol	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Di-n-butyl phthalate	0.11	0.088	0.47	J	mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Dibenz(a,h)anthracene	ND	0.095	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
1,2-Dichlorobenzene	ND	0.090	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
1,3-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
3,3'-Dichlorobenzidine	ND	0.087	0.29		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.071	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4-Dinitrophenol	ND	0.078	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.59		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Fluoranthene	ND	0.068	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Hexachlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:15:00 PM

Lab ID: 1605B47-011

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2-Methylphenol	ND	0.098	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
3+4-Methylphenol	ND	0.085	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
3-Nitroaniline	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Nitroaniline	ND	0.083	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
4-Nitrophenol	ND	0.090	0.29		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Pentachlorophenol	ND	0.076	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Phenanthrene	ND	0.080	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Phenol	ND	0.089	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Pyrene	ND	0.089	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Pyridine	ND	0.093	0.47		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
2,4,6-Trichlorophenol	ND	0.098	0.24		mg/Kg-dr	1	6/7/2016 9:08:10 PM	25602
Surr: 2-Fluorophenol	54.0	0	28.3-102		%Rec	1	6/7/2016 9:08:10 PM	25602
Surr: Phenol-d5	63.7	0	35.7-103		%Rec	1	6/7/2016 9:08:10 PM	25602
Surr: 2,4,6-Tribromophenol	81.1	0	35.2-108		%Rec	1	6/7/2016 9:08:10 PM	25602
Surr: Nitrobenzene-d5	65.9		24-118		%Rec	1	6/7/2016 9:08:10 PM	25602
Surr: 2-Fluorobiphenyl	78.1		35.4-111		%Rec	1	6/7/2016 9:08:10 PM	25602
Surr: 4-Terphenyl-d14	56.8		15-91.7		%Rec	1	6/7/2016 9:08:10 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Toluene	0.863	0.251	2.08	J	µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Ethylbenzene	ND	0.280	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.349	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2,4-Trimethylbenzene	0.645	0.353	2.08	J	µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.343	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Naphthalene	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1-Methylnaphthalene	ND	0.237	4.16		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
2-Methylnaphthalene	ND	0.548	4.16		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Acetone	45.6	0.616	10.4		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:15:00 PM

Lab ID: 1605B47-011

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.212	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Bromodichloromethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Bromoform	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Bromomethane	ND	0.375	3.12		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
2-Butanone	5.12	0.750	10.4	J	µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Carbon disulfide	ND	0.769	10.4		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Carbon tetrachloride	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Chlorobenzene	ND	0.239	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Chloroethane	ND	0.384	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Chloroform	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Chloromethane	ND	0.527	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
2-Chlorotoluene	ND	0.354	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
4-Chlorotoluene	ND	0.346	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
cis-1,2-DCE	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
cis-1,3-Dichloropropene	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.222	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Dibromochloromethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Dibromomethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2-Dichlorobenzene	ND	0.303	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,3-Dichlorobenzene	ND	0.384	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,4-Dichlorobenzene	ND	0.389	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Dichlorodifluoromethane	ND	1.21	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1-Dichloroethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1-Dichloroethene	ND	0.341	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2-Dichloropropane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,3-Dichloropropane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
2,2-Dichloropropane	ND	0.263	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1-Dichloropropene	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Hexachlorobutadiene	ND	0.474	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
2-Hexanone	ND	0.518	10.4		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Isopropylbenzene	ND	0.262	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
4-Isopropyltoluene	ND	0.390	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
4-Methyl-2-pentanone	ND	4.16	10.4		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Methylene chloride	ND	2.08	3.12		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
n-Butylbenzene	ND	0.507	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
n-Propylbenzene	ND	0.372	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
sec-Butylbenzene	ND	0.369	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Styrene	ND	0.266	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
tert-Butylbenzene	ND	0.304	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:15:00 PM

Lab ID: 1605B47-011

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Tetrachloroethene (PCE)	ND	0.273	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
trans-1,2-DCE	ND	0.210	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
trans-1,3-Dichloropropene	ND	0.252	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.503	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.631	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1,1-Trichloroethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,1,2-Trichloroethane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Trichloroethene (TCE)	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Trichlorofluoromethane	ND	0.261	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
1,2,3-Trichloropropane	ND	2.08	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Vinyl chloride	ND	0.547	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Xylenes, Total	ND	0.829	2.08		µg/Kg-dry	1	5/26/2016 8:15:00 PM	25524
Surr: 1,2-Dichloroethane-d4	90.7	0	70-130		%Rec	1	5/26/2016 8:15:00 PM	25524
Surr: 4-Bromofluorobenzene	109	0	70-130		%Rec	1	5/26/2016 8:15:00 PM	25524
Surr: Dibromofluoromethane	84.9	0	70-130		%Rec	1	5/26/2016 8:15:00 PM	25524
Surr: Toluene-d8	99.3	0	70-130		%Rec	1	5/26/2016 8:15:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (12-14')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:35:00 PM

Lab ID: 1605B47-012

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME	
Diesel Range Organics (DRO)	ND	4.1	11		mg/Kg-dr	1	6/2/2016 2:33:06 PM	25570
Motor Oil Range Organics (MRO)	ND	57	57		mg/Kg-dr	1	6/2/2016 2:33:06 PM	25570
Surr: DNOP	80.5	0	70-130		%Rec	1	6/2/2016 2:33:06 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.78	3.8		mg/Kg-dr	1	6/2/2016 2:25:52 AM	25547
Surr: BFB	119	0	80-120		%Rec	1	6/2/2016 2:25:52 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	15	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0018	0.00067	0.039	J	mg/Kg-dr	1	6/2/2016 11:17:44 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.9		mg/Kg-dr	2	6/23/2016 11:12:52 AM	25603
Arsenic	4.1	0.86	2.9		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Barium	410	0.11	0.23		mg/Kg-dr	2	6/2/2016 4:47:21 PM	25603
Beryllium	1.2	0.0054	0.18		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Cadmium	ND	0.074	0.12		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Chromium	14	0.15	0.35		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Cobalt	5.5	0.045	0.35		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Iron	21000	110	290		mg/Kg-dr	100	6/2/2016 3:05:22 PM	25603
Lead	2.1	0.21	0.29		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Manganese	1300	0.26	0.59		mg/Kg-dr	5	6/5/2016 2:05:15 PM	25603
Nickel	12	0.13	0.59		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/5/2016 2:03:43 PM	25603
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Vanadium	11	0.041	2.9		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
Zinc	20	0.67	2.9		mg/Kg-dr	1	6/2/2016 4:45:34 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Acenaphthylene	ND	0.094	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Aniline	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Anthracene	ND	0.077	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benz(a)anthracene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benzo(a)pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benzo(b)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (12-14')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:35:00 PM

Lab ID: 1605B47-012

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.096	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Benzyl alcohol	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Bis(2-chloroethyl)ether	ND	0.085	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Bis(2-ethylhexyl)phthalate	0.12	0.094	0.58	J	mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Carbazole	ND	0.078	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Chloroaniline	ND	0.13	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2-Chloronaphthalene	ND	0.091	0.29		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2-Chlorophenol	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Chrysene	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Di-n-butyl phthalate	ND	0.087	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Di-n-octyl phthalate	ND	0.099	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Dibenz(a,h)anthracene	ND	0.094	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Dibenzofuran	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
1,2-Dichlorobenzene	ND	0.089	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
1,3-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
1,4-Dichlorobenzene	ND	0.098	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
3,3'-Dichlorobenzidine	ND	0.085	0.29		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4-Dichlorophenol	ND	0.11	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.070	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4-Dinitrophenol	ND	0.077	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4-Dinitrotoluene	ND	0.10	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.58		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Fluoranthene	ND	0.067	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Fluorene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Hexachlorobenzene	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Hexachloroethane	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
1-Methylnaphthalene	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (12-14')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:35:00 PM

Lab ID: 1605B47-012

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2-Methylphenol	ND	0.097	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
3+4-Methylphenol	ND	0.084	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2-Nitroaniline	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Nitroaniline	ND	0.082	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Nitrobenzene	ND	0.12	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2-Nitrophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
4-Nitrophenol	ND	0.088	0.29		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Pentachlorophenol	ND	0.075	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Phenanthrene	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Phenol	ND	0.087	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Pyridine	ND	0.092	0.46		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
2,4,6-Trichlorophenol	ND	0.096	0.23		mg/Kg-dr	1	6/7/2016 4:57:53 PM	25602
Surr: 2-Fluorophenol	44.4	0	28.3-102		%Rec	1	6/7/2016 4:57:53 PM	25602
Surr: Phenol-d5	50.7	0	35.7-103		%Rec	1	6/7/2016 4:57:53 PM	25602
Surr: 2,4,6-Tribromophenol	47.1	0	35.2-108		%Rec	1	6/7/2016 4:57:53 PM	25602
Surr: Nitrobenzene-d5	48.8		24-118		%Rec	1	6/7/2016 4:57:53 PM	25602
Surr: 2-Fluorobiphenyl	52.9		35.4-111		%Rec	1	6/7/2016 4:57:53 PM	25602
Surr: 4-Terphenyl-d14	43.4		15-91.7		%Rec	1	6/7/2016 4:57:53 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	6.06	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Toluene	5.64	0.236	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Ethylbenzene	1.17	0.262	1.95	J	µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.328	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2,4-Trimethylbenzene	1.59	0.331	1.95	J	µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,3,5-Trimethylbenzene	0.879	0.322	1.95	J	µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2-Dichloroethane (EDC)	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2-Dibromoethane (EDB)	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Naphthalene	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1-Methylnaphthalene	0.273	0.222	3.91	J	µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
2-Methylnaphthalene	ND	0.514	3.91		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Acetone	7.74	0.578	9.77	J	µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (12-14')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:35:00 PM

Lab ID: 1605B47-012

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.199	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Bromodichloromethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Bromoform	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Bromomethane	ND	0.352	2.93		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
2-Butanone	ND	0.704	9.77		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Carbon disulfide	ND	0.722	9.77		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Carbon tetrachloride	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Chlorobenzene	ND	0.224	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Chloroethane	ND	0.360	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Chloroform	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Chloromethane	ND	0.495	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
2-Chlorotoluene	ND	0.332	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
4-Chlorotoluene	ND	0.325	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
cis-1,2-DCE	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
cis-1,3-Dichloropropene	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.208	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Dibromochloromethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Dibromomethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2-Dichlorobenzene	ND	0.284	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,3-Dichlorobenzene	ND	0.361	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,4-Dichlorobenzene	ND	0.366	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Dichlorodifluoromethane	ND	1.14	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1-Dichloroethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1-Dichloroethene	ND	0.320	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2-Dichloropropane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,3-Dichloropropane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
2,2-Dichloropropane	ND	0.247	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1-Dichloropropene	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Hexachlorobutadiene	ND	0.445	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
2-Hexanone	ND	0.486	9.77		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Isopropylbenzene	ND	0.246	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
4-Isopropyltoluene	ND	0.366	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
4-Methyl-2-pentanone	ND	3.91	9.77		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Methylene chloride	ND	1.95	2.93		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
n-Butylbenzene	ND	0.476	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
n-Propylbenzene	ND	0.350	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
sec-Butylbenzene	ND	0.347	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Styrene	ND	0.250	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
tert-Butylbenzene	ND	0.285	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-11 (12-14')

Project: North Drainage Ditch

Collection Date: 5/23/2016 4:35:00 PM

Lab ID: 1605B47-012

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Tetrachloroethene (PCE)	ND	0.257	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
trans-1,2-DCE	ND	0.197	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
trans-1,3-Dichloropropene	ND	0.236	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.473	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.592	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1,1-Trichloroethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,1,2-Trichloroethane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Trichloroethene (TCE)	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Trichlorofluoromethane	ND	0.245	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
1,2,3-Trichloropropane	ND	1.95	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Vinyl chloride	ND	0.514	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Xylenes, Total	4.19	0.779	1.95		µg/Kg-dry	1	5/26/2016 8:40:00 PM	25524
Surr: 1,2-Dichloroethane-d4	94.0	0	70-130		%Rec	1	5/26/2016 8:40:00 PM	25524
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/26/2016 8:40:00 PM	25524
Surr: Dibromofluoromethane	82.5	0	70-130		%Rec	1	5/26/2016 8:40:00 PM	25524
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	5/26/2016 8:40:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: DUP03

Project: North Drainage Ditch

Collection Date: 5/23/2016

Lab ID: 1605B47-013

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	8.3	3.9	11	J	mg/Kg-dr	1	6/2/2016 1:33:42 AM	25570
Motor Oil Range Organics (MRO)	ND	55	55		mg/Kg-dr	1	6/2/2016 1:33:42 AM	25570
Surr: DNOP	92.3	0	70-130		%Rec	1	6/2/2016 1:33:42 AM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.78	3.8		mg/Kg-dr	1	6/2/2016 2:49:23 AM	25547
Surr: BFB	118	0	80-120		%Rec	1	6/2/2016 2:49:23 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	14	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.013	0.00066	0.038	J	mg/Kg-dr	1	6/2/2016 11:19:31 AM	25605
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.8		mg/Kg-dr	2	6/15/2016 7:37:05 AM	25603
Arsenic	1.9	0.85	2.9	J	mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Barium	920	0.28	0.58		mg/Kg-dr	5	6/5/2016 2:08:02 PM	25603
Beryllium	1.2	0.0054	0.17		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Cadmium	ND	0.074	0.12		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Chromium	12	0.15	0.35		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Cobalt	5.1	0.044	0.35		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Iron	18000	110	290		mg/Kg-dr	100	6/2/2016 3:06:51 PM	25603
Lead	4.8	0.20	0.29		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Manganese	450	0.10	0.23		mg/Kg-dr	2	6/2/2016 4:50:53 PM	25603
Nickel	10	0.13	0.58		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/5/2016 2:06:37 PM	25603
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Vanadium	21	0.041	2.9		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
Zinc	17	0.66	2.9		mg/Kg-dr	1	6/2/2016 4:49:06 PM	25603
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Acenaphthylene	ND	0.094	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Aniline	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Anthracene	ND	0.077	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benz(a)anthracene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benzo(a)pyrene	ND	0.088	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benzo(b)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP03

Project: North Drainage Ditch

Collection Date: 5/23/2016

Lab ID: 1605B47-013

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.096	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Benzyl alcohol	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Bis(2-chloroethyl)ether	ND	0.085	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Bis(2-ethylhexyl)phthalate	0.12	0.094	0.58	J	mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Carbazole	ND	0.078	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Chloroaniline	ND	0.13	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2-Chloronaphthalene	ND	0.091	0.29		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2-Chlorophenol	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Chrysene	ND	0.098	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Di-n-butyl phthalate	0.088	0.086	0.46	J	mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Di-n-octyl phthalate	ND	0.099	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Dibenz(a,h)anthracene	ND	0.093	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Dibenzofuran	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
1,2-Dichlorobenzene	ND	0.089	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
1,3-Dichlorobenzene	ND	0.089	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
1,4-Dichlorobenzene	ND	0.098	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
3,3'-Dichlorobenzidine	ND	0.085	0.29		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4-Dichlorophenol	ND	0.11	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.070	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4-Dinitrophenol	ND	0.077	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4-Dinitrotoluene	ND	0.10	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,6-Dinitrotoluene	ND	0.12	0.58		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Fluoranthene	ND	0.067	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Fluorene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Hexachlorobenzene	ND	0.091	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Hexachloroethane	ND	0.099	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.090	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
1-Methylnaphthalene	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B47

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: DUP03

Project: North Drainage Ditch

Collection Date: 5/23/2016

Lab ID: 1605B47-013

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2-Methylphenol	ND	0.097	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
3+4-Methylphenol	ND	0.084	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2-Nitroaniline	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Nitroaniline	ND	0.082	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Nitrobenzene	ND	0.12	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2-Nitrophenol	ND	0.11	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
4-Nitrophenol	ND	0.088	0.29		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Pentachlorophenol	ND	0.074	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Phenanthrene	ND	0.079	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Phenol	ND	0.087	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Pyrene	ND	0.087	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Pyridine	ND	0.092	0.46		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
2,4,6-Trichlorophenol	ND	0.096	0.23		mg/Kg-dr	1	6/7/2016 5:28:57 PM	25602
Surr: 2-Fluorophenol	52.9	0	28.3-102		%Rec	1	6/7/2016 5:28:57 PM	25602
Surr: Phenol-d5	62.2	0	35.7-103		%Rec	1	6/7/2016 5:28:57 PM	25602
Surr: 2,4,6-Tribromophenol	55.6	0	35.2-108		%Rec	1	6/7/2016 5:28:57 PM	25602
Surr: Nitrobenzene-d5	64.7		24-118		%Rec	1	6/7/2016 5:28:57 PM	25602
Surr: 2-Fluorobiphenyl	63.2		35.4-111		%Rec	1	6/7/2016 5:28:57 PM	25602
Surr: 4-Terphenyl-d14	46.8		15-91.7		%Rec	1	6/7/2016 5:28:57 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Toluene	0.589	0.206	1.71	J	µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Ethylbenzene	ND	0.230	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.287	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2,4-Trimethylbenzene	0.401	0.290	1.71	J	µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.282	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2-Dichloroethane (EDC)	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2-Dibromoethane (EDB)	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Naphthalene	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1-Methylnaphthalene	ND	0.194	3.42		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
2-Methylnaphthalene	ND	0.450	3.42		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Acetone	31.8	0.506	8.54		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP03

Project: North Drainage Ditch

Collection Date: 5/23/2016

Lab ID: 1605B47-013

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.174	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Bromodichloromethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Bromoform	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Bromomethane	ND	0.308	2.56		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
2-Butanone	3.12	0.616	8.54	J	µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Carbon disulfide	ND	0.632	8.54		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Carbon tetrachloride	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Chlorobenzene	ND	0.196	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Chloroethane	ND	0.315	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Chloroform	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Chloromethane	ND	0.433	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
2-Chlorotoluene	ND	0.291	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
4-Chlorotoluene	ND	0.284	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
cis-1,2-DCE	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
cis-1,3-Dichloropropene	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.182	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Dibromochloromethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Dibromomethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2-Dichlorobenzene	ND	0.249	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,3-Dichlorobenzene	ND	0.315	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,4-Dichlorobenzene	ND	0.320	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Dichlorodifluoromethane	ND	0.997	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1-Dichloroethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1-Dichloroethene	ND	0.280	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2-Dichloropropane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,3-Dichloropropane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
2,2-Dichloropropane	ND	0.216	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1-Dichloropropene	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Hexachlorobutadiene	ND	0.389	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
2-Hexanone	ND	0.425	8.54		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Isopropylbenzene	ND	0.215	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
4-Isopropyltoluene	ND	0.321	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
4-Methyl-2-pentanone	ND	3.42	8.54		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Methylene chloride	ND	1.71	2.56		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
n-Butylbenzene	ND	0.416	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
n-Propylbenzene	ND	0.306	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
sec-Butylbenzene	ND	0.303	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Styrene	ND	0.218	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
tert-Butylbenzene	ND	0.250	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605B47**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: DUP03

Project: North Drainage Ditch

Collection Date: 5/23/2016

Lab ID: 1605B47-013

Matrix: SOIL

Received Date: 5/24/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Tetrachloroethene (PCE)	ND	0.224	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
trans-1,2-DCE	ND	0.173	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
trans-1,3-Dichloropropene	ND	0.207	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.413	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.518	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1,1-Trichloroethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,1,2-Trichloroethane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Trichloroethene (TCE)	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Trichlorofluoromethane	ND	0.215	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
1,2,3-Trichloropropane	ND	1.71	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Vinyl chloride	ND	0.449	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Xylenes, Total	ND	0.681	1.71		µg/Kg-dry	1	5/26/2016 9:05:00 PM	25524
Surr: 1,2-Dichloroethane-d4	97.5	0	70-130		%Rec	1	5/26/2016 9:05:00 PM	25524
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	5/26/2016 9:05:00 PM	25524
Surr: Dibromofluoromethane	87.3	0	70-130		%Rec	1	5/26/2016 9:05:00 PM	25524
Surr: Toluene-d8	98.7	0	70-130		%Rec	1	5/26/2016 9:05:00 PM	25524

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531015
Project Name: 1605B47

Analytical Results Report

Sample Number	160531015-001	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-001G / EB052316	Sampling Time	5:50 PM		
Matrix	Water	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.006	0.01	6/6/2016	MER	EPA 335.4	
Cyanide (wad)	ND	mg/L	0.006	0.01	6/6/2016	MER	SM4500CNI	M2

Sample Number	160531015-002	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-002C / NDD-4 (0-0.5')	Sampling Time	11:15 AM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.191	mg/Kg	0.133	0.265	6/6/2016	MER	EPA 335.4	J
%moisture	6.5	Percent			6/1/2016	MER	%moisture	

Sample Number	160531015-003	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-003C / NDD-4 (1.5-2')	Sampling Time	11:25 AM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.151	0.301	6/6/2016	MER	EPA 335.4	
%moisture	18.7	Percent			6/1/2016	MER	%moisture	

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531015
Project Name: 1605B47

Analytical Results Report

Sample Number	160531015-004	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-004C / NDD-4 (8-10')	Sampling Time	11:35 AM			
Matrix	Soil	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.139	0.277	6/6/2016	MER	EPA 335.4	
%moisture	15.6	Percent			6/1/2016	MER	%moisture	

Sample Number	160531015-005	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-005C / NDD-4 (18-20')	Sampling Time	11:45 AM			
Matrix	Soil	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.137	0.273	6/6/2016	MER	EPA 335.4	
%moisture	16.9	Percent			6/1/2016	MER	%moisture	

Sample Number	160531015-006	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-006C / NDD-6 (0-0.5')	Sampling Time	1:00 PM			
Matrix	Soil	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.15	0.3	6/6/2016	MER	EPA 335.4	
%moisture	25.8	Percent			6/1/2016	MER	%moisture	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531015
Project Name: 1605B47

Analytical Results Report

Sample Number	160531015-007	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-007C / NDD-6 (1.5-2')	Sampling Time	1:15 PM			
Matrix	Soil	Sample Location				
Comments						

Sample Number	160531015-008	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-008C / NDD-6 (4-6')	Sampling Time	1:40 PM			
Matrix	Soil	Sample Location				
Comments						

Sample Number	160531015-009	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-009C / NDD-6 (10-12')	Sampling Time	1:55 PM			
Matrix	Soil	Sample Location				
Comments						

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531015
Project Name: 1605B47

Analytical Results Report

Sample Number	160531015-010	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-010C / NDD-11 (0-0.5')	Sampling Time	4:00 PM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.115	0.23	6/6/2016	MER	EPA 335.4	
%moisture	5.7	Percent			6/1/2016	MER	%moisture	

Sample Number	160531015-011	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-011C / NDD-11 (1.5-2')	Sampling Time	4:15 PM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.133	0.265	6/6/2016	MER	EPA 335.4	
%moisture	18.4	Percent			6/1/2016	MER	%moisture	

Sample Number	160531015-012	Sampling Date	5/23/2016	Date/Time Received	5/27/2016 12:00 PM
Client Sample ID	1605B47-012C / NDD-11 (12-14')	Sampling Time	4:35 PM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.138	0.275	6/6/2016	MER	EPA 335.4	
%moisture	14.2	Percent			6/1/2016	MER	%moisture	

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Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

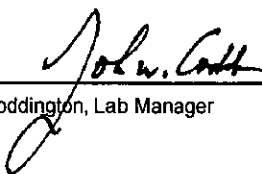
Batch #: 160531015
Project Name: 1605B47

Analytical Results Report

Sample Number	160531015-013	Sampling Date	5/23/2016	Date/Time Received	5/27/2016	12:00 PM
Client Sample ID	1605B47-013C / DUP03	Sampling Time				
Matrix	Soil	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.144	0.288	6/6/2016	MER	EPA 335.4	
%moisture	18.7	Percent			6/1/2016	MER	%moisture	

Authorized Signature


John Coddington, Lab Manager

J The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
M2 Matrix spike recovery was low; the associated blank spike recovery was acceptable. Potential matrix effect
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.

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Address: 4901 HAWKINS NE SUITE D
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Attn: ANDY FREEMAN

Batch #: 160531015
Project Name: 1605B47

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide (wad)	0.544	mg/L	0.5	108.8	80-120	6/6/2016	6/6/2016
Cyanide	0.535	mg/L	0.5	107.0	90-110	6/6/2016	6/6/2016
Cyanide	0.535	mg/kg	0.5	107.0	90-110	6/6/2016	6/6/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160531013-001A	Cyanide (wad)	0.0203	0.530	mg/L	0.5	101.9	80-120	6/6/2016	6/6/2016
160531013-001	Cyanide	ND	0.518	mg/L	0.5	103.6	90-110	6/6/2016	6/6/2016
160531013-002	Cyanide	ND	16.1	mg/kg	15.3	105.2	70-130	6/6/2016	6/6/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (wad)	0.235	mg/L	0.5	42.9	77.1	0-25	6/6/2016	6/6/2016
Cyanide	0.528	mg/L	0.5	105.6	1.9	0-20	6/6/2016	6/6/2016
Cyanide	15.5	mg/kg	15.3	101.3	3.8	0-25	6/6/2016	6/6/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	6/6/2016	6/6/2016
Cyanide	ND	mg/Kg	0.2	6/6/2016	6/6/2016
Cyanide (wad)	ND	mg/L	0.01	6/6/2016	6/6/2016

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	B34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067279	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	LCS-B	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	B34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067280	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	98.7	85	115			
Beryllium	0.52	0.0020	0.5000	0	103	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.9	85	115			
Iron	0.49	0.020	0.5000	0	98.1	85	115			
Manganese	0.49	0.0020	0.5000	0	97.3	85	115			
Nickel	0.47	0.010	0.5000	0	93.1	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Vanadium	0.52	0.050	0.5000	0	104	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	85	115			

Sample ID	LLCS-B	SampType:	LCSLL	TestCode:	EPA Method 200.7: Metals					
Client ID:	BatchQC	Batch ID:	B34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067281	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.0021	0.0020	0.002000	0	106	50	150			
Beryllium	0.0021	0.0020	0.002000	0	104	50	150			
Cadmium	0.0020	0.0020	0.002000	0	99.0	50	150			J
Chromium	0.0065	0.0060	0.006000	0	108	50	150			
Cobalt	0.0060	0.0060	0.006000	0	101	50	150			
Iron	0.020	0.020	0.02000	0	98.6	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LLLCS-B	SampType:	LCSLL	TestCode:	EPA Method 200.7: Metals					
Client ID:	BatchQC	Batch ID:	B34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067281	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0021	0.0020	0.002000	0	105	50	150			
Nickel	0.0050	0.010	0.005000	0	101	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.4	50	150			J
Vanadium	0.010	0.050	0.01000	0	101	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	PBW	Batch ID: A34614			RunNo: 34614						
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067276		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	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals						
Client ID:	LCSW	Batch ID:	A34614	RunNo:	34614						
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067277	Units:	mg/L				
Analyte		Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.49	0.0020	0.5000	0	97.1	85	115			
Beryllium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.8	85	115			
Chromium	0.48	0.0060	0.5000	0	96.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.5	85	115			
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Manganese	0.48	0.0020	0.5000	0	96.1	85	115			
Nickel	0.46	0.010	0.5000	0	92.5	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Vanadium	0.51	0.050	0.5000	0	102	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	85	115			

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34614		RunNo: 34614					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067278		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	108	50	150			
Cadmium	0.0023	0.0020	0.002000	0	116	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0060	0.0060	0.006000	0	99.5	50	150			J
Iron	0.021	0.020	0.02000	0	105	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34614		RunNo: 34614					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067278		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0022	0.0020	0.002000	0	109	50	150			
Nickel	0.0059	0.010	0.005000	0	118	50	150			J
Silver	0.0051	0.0050	0.005000	0	101	50	150			
Vanadium	0.010	0.050	0.01000	0	99.6	50	150			J
Zinc	0.0060	0.010	0.005000	0	121	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605B47-001FMSDL				SampType:	MSDLL				TestCode:	EPA 200.8: Metals			
Client ID:	EB052316				Batch ID:	B34651				RunNo:	34651			
Prep Date:					Analysis Date:	6/2/2016				SeqNo:	1068622			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	0.024	0.0010	0.02500	0	95.6	70	130	3.37	20					
Arsenic	0.023	0.0010	0.02500	0	92.8	70	130	0.526	20					
Lead	0.012	0.00050	0.01250	0	95.6	70	130	0.119	20					
Selenium	0.024	0.0010	0.02500	0	97.2	70	130	0.667	20					

Sample ID	1605B47-001FMSLL				SampType:	MSLL				TestCode:	EPA 200.8: Metals			
Client ID:	EB052316				Batch ID:	B34651				RunNo:	34651			
Prep Date:					Analysis Date:	6/2/2016				SeqNo:	1068623			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	0.023	0.0010	0.02500	0	92.4	70	130							
Arsenic	0.023	0.0010	0.02500	0	92.3	70	130							
Lead	0.012	0.00050	0.01250	0	95.4	70	130							
Selenium	0.024	0.0010	0.02500	0	97.9	70	130							

Sample ID	LCS				SampType:	LCS				TestCode:	EPA 200.8: Metals			
Client ID:	LCSW				Batch ID:	B34651				RunNo:	34651			
Prep Date:					Analysis Date:	6/2/2016				SeqNo:	1068640			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	0.023	0.0010	0.02500	0	92.2	85	115							
Arsenic	0.023	0.0010	0.02500	0	93.2	85	115							
Lead	0.012	0.00050	0.01250	0	95.7	85	115							
Selenium	0.025	0.0010	0.02500	0	99.8	85	115							

Sample ID	LLLCS				SampType:	LCSLL				TestCode:	EPA 200.8: Metals			
Client ID:	BatchQC				Batch ID:	B34651				RunNo:	34651			
Prep Date:					Analysis Date:	6/2/2016				SeqNo:	1068643			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	0.00088	0.0010	0.001000	0	88.3	50	150			J				
Arsenic	0.00096	0.0010	0.001000	0	95.5	50	150			J				
Lead	0.00051	0.00050	0.0005000	0	102	50	150							
Selenium	0.0010	0.0010	0.001000	0	101	50	150							

Sample ID	MB				SampType:	MBLK				TestCode:	EPA 200.8: Metals			
Client ID:	PBW				Batch ID:	B34651				RunNo:	34651			
Prep Date:					Analysis Date:	6/2/2016				SeqNo:	1068644			
										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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	B34651	RunNo:	34651					
Prep Date:		Analysis Date:	6/2/2016	SeqNo:	1068644	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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34588		RunNo: 34588					
Prep Date:			Analysis Date: 5/31/2016		SeqNo: 1066706		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	96.4	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.9	85	115			
Lead	0.012	0.00050	0.01250	0	96.1	85	115			
Selenium	0.025	0.0010	0.02500	0	100	85	115			

Sample ID	LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: A34588			RunNo: 34588					
Prep Date:		Analysis Date: 5/31/2016			SeqNo: 1066709		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00093	0.0010	0.001000	0	92.8	50	150			J
Arsenic	0.0011	0.0010	0.001000	0	105	50	150			
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.0011	0.0010	0.001000	0	109	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A34588			RunNo: 34588					
Prep Date:		Analysis Date: 5/31/2016			SeqNo: 1066711		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25541	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25541	RunNo:	34565					
Prep Date:	5/26/2016	Analysis Date:	5/27/2016	SeqNo:	1066065	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25541	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25541	RunNo:	34565					
Prep Date:	5/26/2016	Analysis Date:	5/27/2016	SeqNo:	1066066	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	107	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34520A	RunNo:	34520					
Prep Date:		Analysis Date:	5/26/2016	SeqNo:	1064780	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:	R34520A	RunNo:	34520					
Prep Date:		Analysis Date:	5/26/2016	SeqNo:	1064782	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	104	90	110			
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	9.6	0.50	10.00	0	96.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605B47-002AMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	NDD-4 (0-0.5')	Batch ID:	25570	RunNo:	34590					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1068071	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	11	56.95	0	84.7	33.9	141			
Surr: DNOP	5.2		5.695		91.3	70	130			

Sample ID	1605B47-002AMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	NDD-4 (0-0.5')	Batch ID:	25570	RunNo:	34590					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1068072	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	11	56.44	0	103	33.9	141	18.6	20	
Surr: DNOP	6.3		5.644		112	70	130	0	0	

Sample ID	LCS-25570	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	25570	RunNo:	34590					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1068093	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.4	62.6	124			
Surr: DNOP	4.3		5.000		85.6	70	130			

Sample ID	MB-25570	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	25570	RunNo:	34590					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1068094	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	8.3		10.00		83.3	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25517	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 25517			RunNo: 34489					
Prep Date:	5/26/2016	Analysis Date: 5/27/2016			SeqNo: 1064688		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		95.3	70	141			

Sample ID	LCS-25517		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 25517		RunNo: 34489					
Prep Date:	5/26/2016		Analysis Date: 5/27/2016		SeqNo: 1064689		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	108	71.3	139			
Surr: DNOP	0.48		0.5000		95.8	70	141			

Sample ID	1605B47-001BMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	EB052316		Batch ID: 25517		RunNo: 34489					
Prep Date:	5/26/2016		Analysis Date: 5/27/2016		SeqNo: 1064692		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	111	59.4	160			
Surr: DNOP	0.49		0.5000		97.0	70	141			

Sample ID	1605B47-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	EB052316		Batch ID:	25517		RunNo:	34489				
Prep Date:	5/26/2016		Analysis Date:	5/27/2016		SeqNo:	1064693		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	108	59.4	160	3.22	20		
Surr: DNOP	0.48		0.5000		95.5	70	141	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID MB-25547	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 25547			RunNo: 34598						
Prep Date: 5/27/2016	Analysis Date: 6/1/2016			SeqNo: 1067478		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	1200		1000		118	80	120			

Sample ID LCS-25547	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 25547			RunNo: 34598						
Prep Date: 5/27/2016	Analysis Date: 6/1/2016			SeqNo: 1067479		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	91.1	80	120			
Surr: BFB	1300		1000		127	80	120			S

Sample ID 1605B47-002AMS	SampType: MS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: NDD-4 (0-0.5')	Batch ID: 25547			RunNo: 34598						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067481		Units: mg/Kg-dry				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	15	3.4	17.06	0	86.3	59.3	143			
Surr: BFB	850		682.4		125	80	120			S

Sample ID 1605B47-002AMSD	SampType: MSD			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: NDD-4 (0-0.5')	Batch ID: 25547			RunNo: 34598						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067482		Units: mg/Kg-dry				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	16	3.4	17.06	0	96.5	59.3	143	11.2	20	
Surr: BFB	880		682.4		128	80	120	0	0	S

Sample ID MB-25569	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 25569			RunNo: 34635						
Prep Date: 5/31/2016	Analysis Date: 6/2/2016			SeqNo: 1068904		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	80	120			

Sample ID LCS-25569	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range						
Client ID: LCSS	Batch ID: 25569			RunNo: 34635						
Prep Date: 5/31/2016	Analysis Date: 6/2/2016			SeqNo: 1068906		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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25569		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 25569		RunNo: 34635					
Prep Date:	5/31/2016		Analysis Date: 6/2/2016		SeqNo: 1068906		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	93.1	80	120			
Surr: BFB	1100		1000		113	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: A34579		RunNo: 34579					
Prep Date:			Analysis Date: 5/31/2016		SeqNo: 1066381		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		96.9	66.4	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: A34579		RunNo: 34579					
Prep Date:			Analysis Date: 5/31/2016		SeqNo: 1066382		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	94.9	80	120			
Surr: BFB	21		20.00		104	66.4	120			

Sample ID	1605B47-001AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	EB052316		Batch ID: A34579		RunNo: 34579					
Prep Date:			Analysis Date: 5/31/2016		SeqNo: 1066393		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	101	70	130			
Surr: BFB	20		20.00		101	66.4	120			

Sample ID	1605B47-001AMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Gasoline Range				
Client ID:	EB052316		Batch ID:	A34579		RunNo:	34579				
Prep Date:			Analysis Date:	5/31/2016		SeqNo:	1066394		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	96.6	70	130	4.18	20		
Surr: BFB	20		20.00		98.7	66.4	120	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25547		SampType: MBLK		TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS		Batch ID: 25547		RunNo: 34585					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1066648		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.49		0.5000		97.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			

Sample ID	lcs-25547		SampType: LCS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS		Batch ID: 25547		RunNo: 34585					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1066649		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.47		0.5000		93.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		86.3	70	130			
Surr: Toluene-d8	0.50		0.5000		99.2	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS		Batch ID: A34608		RunNo: 34608					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067223		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.4	70	130			
Toluene	0.95	0.050	1.000	0	94.5	70	130			
Chlorobenzene	0.93	0.050	1.000	0	93.5	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	104	70	130			
Trichloroethene (TCE)	0.93	0.050	1.000	0	92.8	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.49		0.5000		98.1	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.5	70	130			

Sample ID	rb		SampType: MBLK		TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS		Batch ID: A34608		RunNo: 34608					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067224		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID: A34608			RunNo: 34608					
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067224	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	0.026	0.050								J
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	0.022	0.20								J
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								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType: MBLK				TestCode: EPA Method 8260B: Volatiles				
Client ID:	PBS	Batch ID: A34608				RunNo: 34608				
Prep Date:		Analysis Date: 6/1/2016				SeqNo: 1067224	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	0.48		0.5000		95.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			

Sample ID	1605B47-007A MS	SampType: MS				TestCode: EPA Method 8260B: Volatiles				
Client ID:	NDD-6 (1.5-2')	Batch ID: A34608				RunNo: 34608				
Prep Date:		Analysis Date: 6/1/2016				SeqNo: 1068096	Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	13	0.37	14.76	1.078	82.9	49.2	155			
Toluene	15	0.74	14.76	0.6878	98.3	52	154			
Chlorobenzene	14	0.74	14.76	0	96.7	53.2	150			
1,1-Dichloroethene	13	0.74	14.76	0	85.6	34.2	163			
Trichloroethene (TCE)	12	0.74	14.76	0	79.3	48.2	151			
Surr: Dibromofluoromethane	5.9		7.379		80.3	70	130			
Surr: 1,2-Dichloroethane-d4	6.5		7.379		88.5	70	130			
Surr: Toluene-d8	7.3		7.379		98.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605B47-007A MS		SampType: MS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	NDD-6 (1.5-2')		Batch ID: A34608		RunNo: 34608					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1068096		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	6.1		7.379		82.8	70	130			

Sample ID	1605B47-007A MSD		SampType: MSD		TestCode: EPA Method 8260B: Volatiles					
Client ID:	NDD-6 (1.5-2')		Batch ID: A34608		RunNo: 34608					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1068097		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	13	0.37	14.76	1.078	82.1	49.2	155	0.888	20	
Toluene	14	0.74	14.76	0.6878	91.0	52	154	7.30	20	
Chlorobenzene	14	0.74	14.76	0	91.8	53.2	150	5.23	20	
1,1-Dichloroethene	12	0.74	14.76	0	82.7	34.2	163	3.50	20	
Trichloroethene (TCE)	12	0.74	14.76	0	78.2	48.2	151	1.34	20	
Surr: Dibromofluoromethane	5.8		7.379		78.5	70	130	0	0	
Surr: 1,2-Dichloroethane-d4	6.6		7.379		89.5	70	130	0	0	
Surr: Toluene-d8	7.3		7.379		98.7	70	130	0	0	
Surr: 4-Bromofluorobenzene	6.3		7.379		85.1	70	130	0	0	

Sample ID	mb-25569		SampType: MBLK		TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS		Batch ID: 25569		RunNo: 34738					
Prep Date:	5/31/2016		Analysis Date: 6/7/2016		SeqNo: 1072131		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.49		0.5000		98.0	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		99.8	70	130			
Surr: Toluene-d8	0.51		0.5000		102	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.0	70	130			

Sample ID	lcs-25569		SampType: LCS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS		Batch ID: 25569		RunNo: 34738					
Prep Date:	5/31/2016		Analysis Date: 6/7/2016		SeqNo: 1072132		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.49		0.5000		97.7	70	130			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.2	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	100ng LCS	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R34673			RunNo: 34673					
Prep Date:	Analysis Date: 6/3/2016			SeqNo: 1070090		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	17	1.0	20.00	0	86.8	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Chlorobenzene	21	1.0	20.00	0	106	70	130			
1,1-Dichloroethene	15	1.0	20.00	0	77.2	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.1	70	130			
Surr: 1,2-Dichloroethane-d4	8.8		10.00		87.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	8.8		10.00		87.9	70	130			
Surr: Toluene-d8	11		10.00		109	70	130			

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34673			RunNo: 34673					
Prep Date:		Analysis Date: 6/3/2016			SeqNo: 1070091		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	0.10	2.0								J
1-Methylnaphthalene	0.27	4.0								J
2-Methylnaphthalene	0.34	4.0								J
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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34673			RunNo: 34673					
Prep Date:		Analysis Date: 6/3/2016			SeqNo: 1070091	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	0.78	10								J
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	0.13	1.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	RB	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34673			RunNo: 34673					
Prep Date:		Analysis Date: 6/3/2016			SeqNo: 1070091		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	8.8		10.00		88.0	70	130			
Surr: Toluene-d8	11		10.00		107	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25602	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25602	RunNo:	34771					
Prep Date:	6/1/2016	Analysis Date:	6/7/2016	SeqNo:	1072954	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	0.091	0.50								J
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	0.11	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	0.083	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25602	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25602	RunNo:	34771					
Prep Date:	6/1/2016	Analysis Date:	6/7/2016	SeqNo:	1072954	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								
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		61.6	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.7	35.7	103			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		72.4	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		75.2	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		73.1	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID mb-25633	SampType: MBLK				TestCode: EPA Method 8270C: Semivolatiles					
Client ID: PBS	Batch ID: 25633				RunNo: 34814					
Prep Date: 6/2/2016	Analysis Date: 6/9/2016				SeqNo: 1074299	Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.5		3.330		76.6	28.3	102			
Surr: Phenol-d5	2.8		3.330		84.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.9		3.330		88.5	35.2	108			
Surr: Nitrobenzene-d5	1.4		1.670		84.2	24	118			
Surr: 2-Fluorobiphenyl	1.5		1.670		88.3	35.4	111			
Surr: 4-Terphenyl-d14	0.93		1.670		55.6	15	91.7			

Sample ID lcs-25602	SampType: LCS				TestCode: EPA Method 8270C: Semivolatiles					
Client ID: LCSS	Batch ID: 25602				RunNo: 34814					
Prep Date: 6/1/2016	Analysis Date: 6/9/2016				SeqNo: 1074352	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	78.6	45.8	99.8			
4-Chloro-3-methylphenol	2.5	0.50	3.330	0	74.3	51.5	103			
2-Chlorophenol	2.3	0.20	3.330	0	70.5	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	74.0	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	71.4	36	87.2			
N-Nitrosodi-n-propylamine	0.87	0.20	1.670	0	52.0	47.3	104			
4-Nitrophenol	2.6	0.25	3.330	0	77.0	47.3	95.3			
Pentachlorophenol	2.6	0.40	3.330	0	78.5	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.5	47.8	106			
Pyrene	1.4	0.20	1.670	0	81.5	33.4	105			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	79.6	50.4	115			
Surr: 2-Fluorophenol	1.9		3.330		58.2	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.5	35.7	103			
Surr: 2,4,6-Tribromophenol	2.8		3.330		82.8	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		70.7	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		80.7	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		65.2	15	91.7			

Sample ID lcs-25633	SampType: LCS				TestCode: EPA Method 8270C: Semivolatiles					
Client ID: LCSS	Batch ID: 25633				RunNo: 34814					
Prep Date: 6/2/2016	Analysis Date: 6/9/2016				SeqNo: 1074353	Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.4		3.330		72.1	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.330		73.9	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.670		67.5	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.7	35.4	111			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	lcs-25633		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSS		Batch ID: 25633			RunNo: 34814				
Prep Date:	6/2/2016		Analysis Date: 6/9/2016			SeqNo: 1074353		Units: %Rec		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.78		1.670		46.4	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25546	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25546	RunNo:	34621					
Prep Date:	5/27/2016	Analysis Date:	6/1/2016	SeqNo:	1067672	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	5.0								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	5.0								
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	5.0								

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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25546	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25546	RunNo:	34621					
Prep Date:	5/27/2016	Analysis Date:	6/1/2016	SeqNo:	1067672	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	5.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	5.0								
3+4-Methylphenol	ND	5.0								
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	5.0								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	5.0								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	97		200.0		48.5	15	123			
Surr: Phenol-d5	76		200.0		37.9	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		80.5	18.4	134			
Surr: Nitrobenzene-d5	65		100.0		65.2	28.8	134			
Surr: 2-Fluorobiphenyl	54		100.0		53.5	35.9	125			
Surr: 4-Terphenyl-d14	56		100.0		55.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546	SampType: LCS4			TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC	Batch ID: 25546			RunNo: 34621					
Prep Date:	5/27/2016	Analysis Date: 6/1/2016			SeqNo: 1067673		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	56	94.6			
Acenaphthylene	77	10	100.0	0	77.0	55	95.1			
Aniline	58	10	100.0	0	58.0	26.4	112			
Anthracene	75	10	100.0	0	74.9	53.9	111			
Azobenzene	75	10	100.0	0	74.7	52.4	118			
Benz(a)anthracene	80	10	100.0	0	80.3	27.3	114			
Benzo(a)pyrene	83	10	100.0	0	83.1	53.8	108			
Benzo(b)fluoranthene	89	10	100.0	0	89.4	55.4	107			
Benzo(g,h,i)perylene	84	10	100.0	0	83.8	61.6	97.9			
Benzo(k)fluoranthene	79	10	100.0	0	78.8	50.4	104			
Benzoic acid	63	20	100.0	0	63.2	11.2	78.4			
Benzyl alcohol	64	10	100.0	0	63.8	47.5	107			
Bis(2-chloroethoxy)methane	70	10	100.0	0	70.2	50.1	108			
Bis(2-chloroethyl)ether	64	10	100.0	0	64.5	46.7	113			
Bis(2-chloroisopropyl)ether	61	10	100.0	0	61.4	38.1	116			
Bis(2-ethylhexyl)phthalate	79	10	100.0	0	78.6	42	122			
4-Bromophenyl phenyl ether	78	10	100.0	0	77.5	57.2	110			
Butyl benzyl phthalate	79	10	100.0	0	78.6	56.2	106			
Carbazole	83	10	100.0	0	82.8	52.5	106			
4-Chloro-3-methylphenol	76	10	100.0	0	76.4	48.3	108			
4-Chloroaniline	68	10	100.0	0	67.5	41.7	108			
2-Chloronaphthalene	74	10	100.0	0	73.7	53.5	104			
2-Chlorophenol	64	10	100.0	0	63.7	38.5	107			
4-Chlorophenyl phenyl ether	82	10	100.0	0	81.6	44.5	107			
Chrysene	84	10	100.0	0	83.7	53.5	103			
Di-n-butyl phthalate	77	10	100.0	0	76.7	59.4	109			
Di-n-octyl phthalate	76	10	100.0	0	76.0	56.8	112			
Dibenz(a,h)anthracene	88	10	100.0	0	88.2	57.7	110			
Dibenzofuran	81	10	100.0	0	81.4	49	101			
1,2-Dichlorobenzene	45	5.0	100.0	0	44.8	34.1	101			
1,3-Dichlorobenzene	41	10	100.0	0	40.5	31.5	95.3			
1,4-Dichlorobenzene	41	5.0	100.0	0	40.6	34.5	94.9			
3,3'-Dichlorobenzidine	83	10	100.0	0	83.5	46.3	111			
Diethyl phthalate	86	10	100.0	0	85.9	61.2	95.3			
Dimethyl phthalate	83	10	100.0	0	83.1	62	97.6			
2,4-Dichlorophenol	70	20	100.0	0	70.0	40	109			
2,4-Dimethylphenol	63	10	100.0	0	63.1	43.8	116			
4,6-Dinitro-2-methylphenol	82	20	100.0	0	81.7	22.1	114			
2,4-Dinitrophenol	100	5.0	100.0	0	102	6.98	106			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546	SampType: LCS4			TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC	Batch ID: 25546			RunNo: 34621					
Prep Date:	5/27/2016	Analysis Date: 6/1/2016			SeqNo: 1067673		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	86	5.0	100.0	0	86.4	54.1	99.2			
2,6-Dinitrotoluene	83	10	100.0	0	83.4	58.7	92.7			
Fluoranthene	88	10	100.0	0	87.8	56.2	101			
Fluorene	86	10	100.0	0	85.9	57.2	93.1			
Hexachlorobenzene	82	5.0	100.0	0	82.0	56.4	106			
Hexachlorobutadiene	46	10	100.0	0	46.2	37.3	102			
Hexachlorocyclopentadiene	54	10	100.0	0	54.2	31.3	102			
Hexachloroethane	38	5.0	100.0	0	37.6	30.9	94.3			
Indeno(1,2,3-cd)pyrene	86	10	100.0	0	86.0	63.4	95.4			
Isophorone	67	10	100.0	0	67.2	54.7	106			
1-Methylnaphthalene	69	10	100.0	0	69.1	45.2	109			
2-Methylnaphthalene	63	10	100.0	0	62.7	43.8	112			
2-Methylphenol	66	5.0	100.0	0	66.1	45.3	107			
3+4-Methylphenol	58	5.0	100.0	0	57.7	38.6	105			
N-Nitrosodi-n-propylamine	62	10	100.0	0	62.4	44.4	109			
N-Nitrosodimethylamine	55	10	100.0	0	54.9	46.6	101			
N-Nitrosodiphenylamine	73	10	100.0	0	72.6	54.9	106			
Naphthalene	59	10	100.0	0	58.6	45.6	105			
2-Nitroaniline	82	10	100.0	0	82.2	60	93.8			
3-Nitroaniline	81	10	100.0	0	81.4	56.7	93.1			
4-Nitroaniline	86	10	100.0	0	86.4	49.6	99.1			
Nitrobenzene	65	5.0	100.0	0	64.9	48.6	107			
2-Nitrophenol	70	10	100.0	0	70.5	36	113			
4-Nitrophenol	58	10	100.0	0	58.4	23.6	72.2			
Pentachlorophenol	85	5.0	100.0	0	85.2	17.7	115			
Phenanthrene	78	10	100.0	0	78.3	57	105			
Phenol	46	10	100.0	0	46.5	22.9	81.8			
Pyrene	85	10	100.0	0	84.9	52.2	103			
Pyridine	26	5.0	100.0	0	26.3	15.2	89.7			
1,2,4-Trichlorobenzene	51	10	100.0	0	51.5	43.2	103			
2,4,5-Trichlorophenol	79	10	100.0	0	79.0	33	109			
2,4,6-Trichlorophenol	86	10	100.0	0	85.7	27.4	110			
Surr: 2-Fluorophenol	71		200.0		35.7	15	123			
Surr: Phenol-d5	55		200.0		27.6	4.13	124			
Surr: 2,4,6-Tribromophenol	130		200.0		63.4	18.4	134			
Surr: Nitrobenzene-d5	50		100.0		50.2	28.8	134			
Surr: 2-Fluorobiphenyl	51		100.0		50.7	35.9	125			
Surr: 4-Terphenyl-d14	47		100.0		47.0	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25546		RunNo: 34621					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067674		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	35	113			
4-Chloro-3-methylphenol	76	10	100.0	0	76.4	40.7	114			
2-Chlorophenol	64	10	100.0	0	63.7	37.6	113			
1,4-Dichlorobenzene	41	10	100.0	0	40.6	37.7	106			
2,4-Dinitrotoluene	86	10	100.0	0	86.4	37	91			
N-Nitrosodi-n-propylamine	62	10	100.0	0	62.4	45.4	105			
4-Nitrophenol	58	10	100.0	0	58.4	33.4	104			
Pentachlorophenol	85	20	100.0	0	85.2	29.5	94.9			
Phenol	46	10	100.0	0	46.5	30.6	119			
Pyrene	85	10	100.0	0	84.9	26.2	120			
1,2,4-Trichlorobenzene	51	10	100.0	0	51.5	39.9	125			
Surr: 2-Fluorophenol	71		200.0		35.7	15	123			
Surr: Phenol-d5	55		200.0		27.6	4.13	124			
Surr: 2,4,6-Tribromophenol	130		200.0		63.4	18.4	134			
Surr: Nitrobenzene-d5	50		100.0		50.2	28.8	134			
Surr: 2-Fluorobiphenyl	51		100.0		50.7	35.9	125			
Surr: 4-Terphenyl-d14	47		100.0		47.0	15	146			

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:			Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	71	0.020	100.0	0	71.4	56	94.6	9.80	20	
Acenaphthylene	74	0.020	100.0	0	74.3	55	95.1	3.59	20	
Aniline	67	0.020	100.0	0	66.9	26.4	112	14.2	20	
Anthracene	77	0.020	100.0	0	77.2	53.9	111	3.02	20	
Azobenzene	79	0.020	100.0	0	79.4	52.4	118	6.00	20	
Benz(a)anthracene	84	0.020	100.0	0	84.4	27.3	114	4.98	20	
Benzo(a)pyrene	85	0.020	100.0	0	84.6	53.8	108	1.81	20	
Benzo(b)fluoranthene	84	0.020	100.0	0	83.7	55.4	107	6.56	20	
Benzo(g,h,i)perylene	83	0.020	100.0	0	83.3	61.6	97.9	0.575	20	
Benzo(k)fluoranthene	79	0.020	100.0	0	78.9	50.4	104	0.203	20	
Benzoic acid	58	0.040	100.0	0	58.5	11.2	78.4	7.76	20	
Benzyl alcohol	75	0.020	100.0	0	74.7	47.5	107	15.7	20	
Bis(2-chloroethoxy)methane	68	0.020	100.0	0	68.0	50.1	108	3.21	20	
Bis(2-chloroethyl)ether	69	0.020	100.0	0	68.9	46.7	113	6.63	20	
Bis(2-chloroisopropyl)ether	67	0.020	100.0	0	67.0	38.1	116	8.75	20	
Bis(2-ethylhexyl)phthalate	80	0.020	100.0	0	79.8	42	122	1.59	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:	Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	77	0.020	100.0	0	76.8	57.2	110	0.933	20	
Butyl benzyl phthalate	85	0.020	100.0	0	85.0	56.2	106	7.82	20	
Carbazole	80	0.020	100.0	0	79.6	52.5	106	3.87	20	
4-Chloro-3-methylphenol	71	0.020	100.0	0	70.6	48.3	108	7.84	20	
4-Chloroaniline	69	0.020	100.0	0	68.9	41.7	108	2.02	20	
2-Chloronaphthalene	71	0.020	100.0	0	70.6	53.5	104	4.41	20	
2-Chlorophenol	73	0.020	100.0	0	73.2	38.5	107	13.9	20	
4-Chlorophenyl phenyl ether	72	0.020	100.0	0	71.7	44.5	107	13.0	20	
Chrysene	80	0.020	100.0	0	79.5	53.5	103	5.19	20	
Di-n-butyl phthalate	78	0.020	100.0	0	78.3	59.4	109	2.04	20	
Di-n-octyl phthalate	84	0.020	100.0	0	84.0	56.8	112	10.0	20	
Dibenz(a,h)anthracene	83	0.020	100.0	0	82.6	57.7	110	6.60	20	
Dibenzofuran	71	0.020	100.0	0	70.6	49	101	14.1	20	
1,2-Dichlorobenzene	48	0.020	100.0	0	48.4	34.1	101	7.69	20	
1,3-Dichlorobenzene	44	0.020	100.0	0	43.7	31.5	95.3	7.55	20	
1,4-Dichlorobenzene	46	0.020	100.0	0	45.7	34.5	94.9	11.9	20	
3,3'-Dichlorobenzidine	86	0.020	100.0	0	86.3	46.3	111	3.39	20	
Diethyl phthalate	75	0.020	100.0	0	74.8	61.2	95.3	13.8	20	
Dimethyl phthalate	78	0.020	100.0	0	78.2	62	97.6	6.00	20	
2,4-Dichlorophenol	73	0.040	100.0	0	73.0	40	109	4.08	20	
2,4-Dimethylphenol	66	0.020	100.0	0	66.3	43.8	116	4.94	20	
4,6-Dinitro-2-methylphenol	89	0.040	100.0	0	88.6	22.1	114	8.11	20	
2,4-Dinitrophenol	88	0.040	100.0	0	88.3	6.98	106	13.9	20	
2,4-Dinitrotoluene	73	0.020	100.0	0	73.5	54.1	99.2	16.2	20	
2,6-Dinitrotoluene	74	0.020	100.0	0	74.0	58.7	92.7	11.9	20	
Fluoranthene	78	0.020	100.0	0	78.1	56.2	101	11.7	20	
Fluorene	75	0.020	100.0	0	74.8	57.2	93.1	13.8	20	
Hexachlorobenzene	85	0.020	100.0	0	84.9	56.4	106	3.47	20	
Hexachlorobutadiene	47	0.020	100.0	0	46.6	37.3	102	0.862	20	
Hexachlorocyclopentadiene	58	0.020	100.0	0	57.6	31.3	102	5.98	20	
Hexachloroethane	41	0.020	100.0	0	40.8	30.9	94.3	8.21	20	
Indeno(1,2,3-cd)pyrene	85	0.020	100.0	0	85.0	63.4	95.4	1.15	20	
Isophorone	70	0.020	100.0	0	70.1	54.7	106	4.17	20	
1-Methylnaphthalene	64	0.020	100.0	0	64.5	45.2	109	6.89	20	
2-Methylnaphthalene	66	0.020	100.0	0	65.8	43.8	112	4.95	20	
2-Methylphenol	69	0.020	100.0	0	68.8	45.3	107	3.94	20	
3+4-Methylphenol	62	0.020	100.0	0	61.9	38.6	105	6.96	20	
N-Nitrosodi-n-propylamine	68	0.020	100.0	0	67.8	44.4	109	8.30	20	
N-Nitrosodimethylamine	59	0.020	100.0	0	59.0	46.6	101	7.20	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:			Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	79	0.020	100.0	0	78.6	54.9	106	7.96	20	
Naphthalene	61	0.020	100.0	0	61.5	45.6	105	4.80	20	
2-Nitroaniline	73	0.020	100.0	0	73.4	60	93.8	11.4	20	
3-Nitroaniline	73	0.020	100.0	0	72.6	56.7	93.1	11.4	20	
4-Nitroaniline	74	0.020	100.0	0	73.9	49.6	99.1	15.6	20	
Nitrobenzene	64	0.020	100.0	0	64.2	48.6	107	1.05	20	
2-Nitrophenol	70	0.020	100.0	0	69.7	36	113	1.06	20	
4-Nitrophenol	53	0.020	100.0	0	53.1	23.6	72.2	9.50	20	
Pentachlorophenol	88	0.040	100.0	0	87.9	17.7	115	3.14	20	
Phenanthrene	81	0.020	100.0	0	81.2	57	105	3.59	20	
Phenol	54	0.020	100.0	0	54.3	22.9	81.8	15.4	20	
Pyrene	81	0.020	100.0	0	81.3	52.2	103	4.29	20	
Pyridine	29	0.020	100.0	0	29.1	15.2	89.7	10.3	20	
1,2,4-Trichlorobenzene	56	0.020	100.0	0	56.2	43.2	103	8.84	20	
2,4,5-Trichlorophenol	76	0.020	100.0	0	76.3	33	109	3.48	20	
2,4,6-Trichlorophenol	75	0.020	100.0	0	74.6	27.4	110	13.9	20	
Surr: 2-Fluorophenol	76		200.0		37.8	15	123	0		
Surr: Phenol-d5	64		200.0		31.8	4.13	124	0		
Surr: 2,4,6-Tribromophenol	130		200.0		65.3	18.4	134	0		
Surr: Nitrobenzene-d5	52		100.0		51.6	28.8	134	0		
Surr: 2-Fluorobiphenyl	51		100.0		51.3	35.9	125	0		
Surr: 4-Terphenyl-d14	49		100.0		48.7	15	146	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25605		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 25605		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068374		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00095	0.033								J

Sample ID	LCS-25605		SampType: LCS		TestCode: EPA Method 7471: Mercury					
Client ID:	LCSS		Batch ID: 25605		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068375		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	107	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25603		SampType:	MBLK		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	PBS		Batch ID:	25603		RunNo:	34648			
Prep Date:	6/1/2016		Analysis Date:	6/2/2016		SeqNo:	1068539		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	ND	0.10								
Nickel	ND	0.50								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID	LCS-25603		SampType:	LCS		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	LCSS		Batch ID:	25603		RunNo:	34648			
Prep Date:	6/1/2016		Analysis Date:	6/2/2016		SeqNo:	1068540		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	105	80	120			
Barium	25	0.10	25.00	0	102	80	120			
Beryllium	26	0.15	25.00	0	105	80	120			
Cadmium	26	0.10	25.00	0	104	80	120			
Chromium	26	0.30	25.00	0	102	80	120			
Cobalt	25	0.30	25.00	0	100	80	120			
Iron	26	2.5	25.00	0	103	80	120			
Lead	25	0.25	25.00	0	99.0	80	120			
Manganese	25	0.10	25.00	0	102	80	120			
Nickel	25	0.50	25.00	0	101	80	120			
Silver	5.1	0.25	5.000	0	102	80	120			
Vanadium	26	2.5	25.00	0	106	80	120			
Zinc	26	2.5	25.00	0	102	80	120			

Sample ID	MB-25603		SampType:	MBLK		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	PBS		Batch ID:	25603		RunNo:	34698			
Prep Date:	6/1/2016		Analysis Date:	6/5/2016		SeqNo:	1070237		Units: mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	2.5								

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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B47

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25603		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 25603		RunNo: 34698					
Prep Date:	6/1/2016		Analysis Date: 6/5/2016		SeqNo: 1070238		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	25	2.5	25.00	0	98.9	80	120			

Sample ID	MB-25603		SampType: MBLK		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	PBS		Batch ID: 25603		RunNo: 34905					
Prep Date:	6/1/2016		Analysis Date: 6/15/2016		SeqNo: 1078099		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								

Sample ID	LCS-25603		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 25603		RunNo: 34905					
Prep Date:	6/1/2016		Analysis Date: 6/15/2016		SeqNo: 1078100		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	25	2.5	25.00	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: **Western Refining Gallup**

Work Order Number: **1605B47**

RcptNo: 1

Received by/date:

AT

05/24/16

Logged By: **Ashley Gallegos**

5/24/2016 4:30:00 PM

Ag

Completed By: **Ashley Gallegos**

5/25/2016 10:46:55 AM

Ag

Reviewed By:

Ja

05/26/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH: 2 2
(<2 or >12 unless noted)
Adjusted? No
Checked by: as

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. 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: WESTERN REFINING SW, INC.
GALLUP REFINERY
 Mailing Address: 92 GIANT CROSSING RD
GALLUP, NM 87301
 Phone #: 505-722-0217
 email or Fax#: ED. RIEGE@WNR.COM

QA/QC Package: ☒ Level 4 (Full Validation)
☐ Standard
 Accreditation
☐ NELAP ☐ Other
☒ EDD (Type) EXCEL

Project Manager: ED RIEGE
 Sampler: TRACY PAYNE
 On Ice: ☒ Yes ☐ No

Sample Temperature: 2.0-1.0 = 1.0

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
5/23/16	1750	WATER	EB052316	40 ML VOA-6	HCL	-001
				1 LITER AMBER-2	NEAT	
				250 ML AMBER-1	NEAT	
				500 ML PLASTIC-1	HNO3	
				125 ML PLASTIC-1	HNO3	
				500 ML PLASTIC-2	NAOH	
				125 ML PLASTIC-1	NEAT	
				125 ML PLASTIC-1	H2SO4	

Date: 5/24/16 Time: 0730
 Relinquished by: [Signature]
 Date: 5/24/16 Time: 1430
 Relinquished by: [Signature]

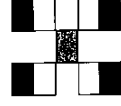
Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

NORTH DRAINAGE DITCH

Project #:



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 + TMB's (8021)	
BTEX + MTBE + TPH (Gas only)		BTEX + MTBE + TPH (Gas only)	
TPH 8015B (GRO / DRO / MRO)		TPH 8015B (GRO / DRO / MRO)	
TPH (Method 418.1)		TPH (Method 418.1)	
EDB (Method 504.1)		EDB (Method 504.1)	
PAH's (8310 or 8270 SIMS)		PAH's (8310 or 8270 SIMS)	
CYANIDE		CYANIDE	
RCRA 8 Metals TOTAL/DISSOLVE		RCRA 8 Metals TOTAL/DISSOLVE	
Anions (F, Cl, NO3, NO2, PO4, SO4)		Anions (F, Cl, NO3, NO2, PO4, SO4)	
8081 Pesticides / 8082 PCB's		8081 Pesticides / 8082 PCB's	
8260B (VOA)		8260B (VOA)	
8270 (Semi-VOA) TOTAL/DISSOLVE		8270 (Semi-VOA) TOTAL/DISSOLVE	
METALS (SEE ATTACHED LIST)		METALS (SEE ATTACHED LIST)	
GEN CHEM		GEN CHEM	
(SEE ATTACHED LIST)		(SEE ATTACHED LIST)	
Air Bubbles (Y or N)		Air Bubbles (Y or N)	

Remarks:

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES
TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

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
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

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR SOIL SAMPLES

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
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



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

June 30, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: Well Installations

OrderNo.: 1605B84

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/25/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (16-18')

Project: Well Installations

Collection Date: 5/24/2016 5:00:00 PM

Lab ID: 1605B84-001

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	330	43	120		mg/Kg-dr	10	6/1/2016 6:01:35 PM	25570
Motor Oil Range Organics (MRO)	3100	610	610		mg/Kg-dr	10	6/1/2016 6:01:35 PM	25570
Surr: DNOP	0	0	70-130	S	%Rec	10	6/1/2016 6:01:35 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	280	12	60		mg/Kg-dr	10	6/2/2016 3:12:49 AM	25547
Surr: BFB	129	0	80-120	S	%Rec	10	6/2/2016 3:12:49 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	18	1.0	1.0		wt%	1	5/31/2016	R34586
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Acenaphthylene	ND	0.099	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Aniline	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Anthracene	ND	0.081	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzo(a)pyrene	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Benzyl alcohol	ND	0.095	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Bis(2-chloroethyl)ether	ND	0.090	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Bis(2-ethylhexyl)phthalate	0.16	0.099	0.61	J	mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Bromophenyl phenyl ether	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Carbazole	ND	0.082	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Chloro-3-methylphenol	ND	0.15	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Chloronaphthalene	ND	0.096	0.31		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Chlorophenol	ND	0.096	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Di-n-butyl phthalate	0.10	0.091	0.49	J	mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Dibenz(a,h)anthracene	ND	0.099	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (16-18')

Project: Well Installations

Collection Date: 5/24/2016 5:00:00 PM

Lab ID: 1605B84-001

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,2-Dichlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
1,3-Dichlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
3,3'-Dichlorobenzidine	ND	0.090	0.31		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.074	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,4-Dinitrophenol	ND	0.081	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Fluoranthene	ND	0.070	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Hexachlorobenzene	ND	0.096	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Hexachlorobutadiene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.095	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Methylnaphthalene	0.18	0.14	0.24	J	mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
3+4-Methylphenol	ND	0.088	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Naphthalene	0.25	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
4-Nitrophenol	ND	0.093	0.31		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Pentachlorophenol	ND	0.078	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Phenanthrene	ND	0.083	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Phenol	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Pyrene	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Pyridine	ND	0.097	0.49		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (16-18')

Project: Well Installations

Collection Date: 5/24/2016 5:00:00 PM

Lab ID: 1605B84-001

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 12:50:08 PM	25602
Surr: 2-Fluorophenol	56.9	0	28.3-102		%Rec	1	6/7/2016 12:50:08 PM	25602
Surr: Phenol-d5	65.7	0	35.7-103		%Rec	1	6/7/2016 12:50:08 PM	25602
Surr: 2,4,6-Tribromophenol	65.0	0	35.2-108		%Rec	1	6/7/2016 12:50:08 PM	25602
Surr: Nitrobenzene-d5	70.6		24-118		%Rec	1	6/7/2016 12:50:08 PM	25602
Surr: 2-Fluorobiphenyl	78.5		35.4-111		%Rec	1	6/7/2016 12:50:08 PM	25602
Surr: 4-Terphenyl-d14	80.6		15-91.7		%Rec	1	6/7/2016 12:50:08 PM	25602
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	1.3	0.48	0.60		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Toluene	14	0.072	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Ethylbenzene	3.8	0.099	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Methyl tert-butyl ether (MTBE)	ND	0.38	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2,4-Trimethylbenzene	8.1	0.089	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,3,5-Trimethylbenzene	2.7	0.088	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2-Dichloroethane (EDC)	ND	0.32	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2-Dibromoethane (EDB)	ND	0.086	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Naphthalene	0.78	0.19	2.4	J	mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1-Methylnaphthalene	ND	0.27	4.8		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
2-Methylnaphthalene	ND	0.26	4.8		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Acetone	ND	1.6	18		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Bromobenzene	ND	0.097	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Bromodichloromethane	ND	0.070	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Bromoform	ND	0.15	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Bromomethane	ND	0.45	3.6		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
2-Butanone	ND	0.69	12		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Carbon disulfide	ND	0.40	12		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Carbon tetrachloride	ND	0.079	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Chlorobenzene	ND	0.098	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Chloroethane	ND	0.24	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Chloroform	ND	0.091	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Chloromethane	ND	0.11	3.6		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
2-Chlorotoluene	ND	0.089	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
4-Chlorotoluene	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
cis-1,2-DCE	ND	0.070	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
cis-1,3-Dichloropropene	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2-Dibromo-3-chloropropane	ND	0.37	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Dibromochloromethane	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Dibromomethane	ND	0.10	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2-Dichlorobenzene	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (16-18")

Project: Well Installations

Collection Date: 5/24/2016 5:00:00 PM

Lab ID: 1605B84-001

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.099	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,4-Dichlorobenzene	ND	0.15	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Dichlorodifluoromethane	ND	0.37	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1-Dichloroethane	ND	0.065	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1-Dichloroethene	ND	0.40	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2-Dichloropropane	ND	0.10	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,3-Dichloropropane	ND	0.14	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
2,2-Dichloropropane	ND	0.069	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1-Dichloropropene	ND	0.096	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Hexachlorobutadiene	ND	0.15	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
2-Hexanone	ND	0.66	12		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Isopropylbenzene	0.16	0.10	1.2	J	mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
4-Isopropyltoluene	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
4-Methyl-2-pentanone	ND	0.35	12		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Methylene chloride	ND	0.35	3.6		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
n-Butylbenzene	0.20	0.11	3.6	J	mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
n-Propylbenzene	1.2	0.093	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
sec-Butylbenzene	ND	0.17	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Styrene	ND	0.11	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
tert-Butylbenzene	ND	0.10	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1,1,2-Tetrachloroethane	ND	0.12	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1,2,2-Tetrachloroethane	ND	0.20	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Tetrachloroethene (PCE)	ND	0.10	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
trans-1,2-DCE	ND	0.34	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
trans-1,3-Dichloropropene	ND	0.18	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2,3-Trichlorobenzene	ND	0.18	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2,4-Trichlorobenzene	ND	0.13	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1,1-Trichloroethane	ND	0.074	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,1,2-Trichloroethane	ND	0.14	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Trichloroethene (TCE)	ND	0.13	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Trichlorofluoromethane	ND	0.090	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
1,2,3-Trichloropropane	ND	0.21	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Vinyl chloride	ND	0.099	1.2		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Xylenes, Total	24	0.23	2.4		mg/Kg-dr	20	6/1/2016 8:27:22 PM	25547
Surr: Dibromofluoromethane	90.7		70-130		%Rec	20	6/1/2016 8:27:22 PM	25547
Surr: 1,2-Dichloroethane-d4	77.8		70-130		%Rec	20	6/1/2016 8:27:22 PM	25547
Surr: Toluene-d8	99.6		70-130		%Rec	20	6/1/2016 8:27:22 PM	25547
Surr: 4-Bromofluorobenzene	106		70-130		%Rec	20	6/1/2016 8:27:22 PM	25547

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (30-32')

Project: Well Installations

Collection Date: 5/24/2016 5:15:00 PM

Lab ID: 1605B84-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.2	12		mg/Kg-dr	1	6/1/2016 5:39:47 PM	25570
Motor Oil Range Organics (MRO)	ND	59	59		mg/Kg-dr	1	6/1/2016 5:39:47 PM	25570
Surr: DNOP	91.6	0	70-130		%Rec	1	6/1/2016 5:39:47 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	3.4	0.63	3.1		mg/Kg-dr	1	6/2/2016 3:36:10 AM	25547
Surr: BFB	122	0	80-120	S	%Rec	1	6/2/2016 3:36:10 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	17	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Acenaphthylene	ND	0.098	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Aniline	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Anthracene	ND	0.080	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzo(a)pyrene	ND	0.091	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzoic acid	ND	0.10	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Benzyl alcohol	ND	0.094	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Bis(2-chloroethyl)ether	ND	0.088	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Bis(2-ethylhexyl)phthalate	0.14	0.098	0.60	J	mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Bromophenyl phenyl ether	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Carbazole	ND	0.081	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Chloroaniline	ND	0.13	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Chloronaphthalene	ND	0.095	0.30		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Chlorophenol	ND	0.095	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Di-n-butyl phthalate	0.097	0.090	0.48	J	mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Di-n-octyl phthalate	ND	0.10	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Dibenz(a,h)anthracene	ND	0.097	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** OW-55 (30-32')**Project:** Well Installations**Collection Date:** 5/24/2016 5:15:00 PM**Lab ID:** 1605B84-002**Matrix:** SOIL**Received Date:** 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,2-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
1,3-Dichlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
3,3'-Dichlorobenzidine	ND	0.089	0.30		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,4-Dichlorophenol	ND	0.11	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.073	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,4-Dinitrophenol	ND	0.080	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,6-Dinitrotoluene	ND	0.13	0.60		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Fluoranthene	ND	0.069	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Hexachlorobenzene	ND	0.095	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Hexachlorobutadiene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.094	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Methylphenol	ND	0.10	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
3+4-Methylphenol	ND	0.087	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Naphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Nitroaniline	ND	0.085	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Nitrobenzene	ND	0.12	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
4-Nitrophenol	ND	0.092	0.30		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Pentachlorophenol	ND	0.077	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Phenanthrene	ND	0.082	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Phenol	ND	0.091	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Pyrene	ND	0.091	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Pyridine	ND	0.095	0.48		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (30-32')

Project: Well Installations

Collection Date: 5/24/2016 5:15:00 PM

Lab ID: 1605B84-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 1:21:00 PM	25602
Surr: 2-Fluorophenol	41.7	0	28.3-102		%Rec	1	6/7/2016 1:21:00 PM	25602
Surr: Phenol-d5	44.8	0	35.7-103		%Rec	1	6/7/2016 1:21:00 PM	25602
Surr: 2,4,6-Tribromophenol	51.3	0	35.2-108		%Rec	1	6/7/2016 1:21:00 PM	25602
Surr: Nitrobenzene-d5	42.8		24-118		%Rec	1	6/7/2016 1:21:00 PM	25602
Surr: 2-Fluorobiphenyl	46.5		35.4-111		%Rec	1	6/7/2016 1:21:00 PM	25602
Surr: 4-Terphenyl-d14	68.7		15-91.7		%Rec	1	6/7/2016 1:21:00 PM	25602
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	0.70	0.012	0.015		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Toluene	0.019	0.0018	0.031	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Ethylbenzene	0.013	0.0025	0.031	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Methyl tert-butyl ether (MTBE)	0.16	0.0096	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2,4-Trimethylbenzene	0.013	0.0023	0.031	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,3,5-Trimethylbenzene	ND	0.0022	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2-Dichloroethane (EDC)	ND	0.0080	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2-Dibromoethane (EDB)	ND	0.0022	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Naphthalene	ND	0.0048	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1-Methylnaphthalene	0.024	0.0068	0.12	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
2-Methylnaphthalene	0.017	0.0066	0.12	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Acetone	ND	0.040	0.46		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Bromobenzene	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Bromodichloromethane	ND	0.0018	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Bromoform	ND	0.0037	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Bromomethane	0.044	0.011	0.092	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
2-Butanone	ND	0.018	0.31		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Carbon disulfide	ND	0.010	0.31		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Carbon tetrachloride	ND	0.0020	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Chlorobenzene	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Chloroethane	ND	0.0061	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Chloroform	ND	0.0023	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Chloromethane	ND	0.0027	0.092		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
2-Chlorotoluene	ND	0.0023	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
4-Chlorotoluene	ND	0.0027	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
cis-1,2-DCE	ND	0.0018	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
cis-1,3-Dichloropropene	ND	0.0028	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2-Dibromo-3-chloropropane	ND	0.0094	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Dibromochloromethane	ND	0.0028	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Dibromomethane	ND	0.0027	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2-Dichlorobenzene	ND	0.0027	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605B84

Date Reported: 6/30/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55 (30-32')

Project: Well Installations

Collection Date: 5/24/2016 5:15:00 PM

Lab ID: 1605B84-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
1,3-Dichlorobenzene	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,4-Dichlorobenzene	ND	0.0038	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Dichlorodifluoromethane	ND	0.0095	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1-Dichloroethane	ND	0.0017	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1-Dichloroethene	ND	0.010	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2-Dichloropropane	ND	0.0026	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,3-Dichloropropane	ND	0.0035	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
2,2-Dichloropropane	ND	0.0018	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1-Dichloropropene	ND	0.0024	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Hexachlorobutadiene	ND	0.0037	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
2-Hexanone	ND	0.017	0.31		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Isopropylbenzene	ND	0.0026	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
4-Isopropyltoluene	ND	0.0028	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
4-Methyl-2-pentanone	ND	0.0089	0.31		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Methylene chloride	ND	0.0088	0.092		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
n-Butylbenzene	ND	0.0027	0.092		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
n-Propylbenzene	ND	0.0024	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
sec-Butylbenzene	ND	0.0042	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Styrene	ND	0.0027	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
tert-Butylbenzene	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1,1,2-Tetrachloroethane	ND	0.0029	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1,2,2-Tetrachloroethane	ND	0.0050	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Tetrachloroethene (PCE)	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
trans-1,2-DCE	ND	0.0086	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
trans-1,3-Dichloropropene	ND	0.0045	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2,3-Trichlorobenzene	ND	0.0046	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2,4-Trichlorobenzene	ND	0.0033	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1,1-Trichloroethane	ND	0.0019	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,1,2-Trichloroethane	ND	0.0036	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Trichloroethene (TCE)	ND	0.0033	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Trichlorofluoromethane	ND	0.0023	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
1,2,3-Trichloropropane	ND	0.0053	0.061		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Vinyl chloride	ND	0.0025	0.031		mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Xylenes, Total	0.020	0.0058	0.061	J	mg/Kg-dr	1	6/1/2016 2:09:57 PM	A34608
Surr: Dibromofluoromethane	99.6		70-130		%Rec	1	6/1/2016 2:09:57 PM	A34608
Surr: 1,2-Dichloroethane-d4	99.8		70-130		%Rec	1	6/1/2016 2:09:57 PM	A34608
Surr: Toluene-d8	100		70-130		%Rec	1	6/1/2016 2:09:57 PM	A34608
Surr: 4-Bromofluorobenzene	91.7		70-130		%Rec	1	6/1/2016 2:09:57 PM	A34608

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	LCS-25570		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 25570		RunNo: 34590					
Prep Date:	5/31/2016		Analysis Date: 6/1/2016		SeqNo: 1068093		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.4	62.6	124			
Surr: DNOP	4.3		5.000		85.6	70	130			

Sample ID	MB-25570	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 25570			RunNo: 34590					
Prep Date:	5/31/2016	Analysis Date: 6/1/2016			SeqNo: 1068094		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	8.3		10.00		83.3	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	MB-25547		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 25547		RunNo: 34598					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067478		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	1200		1000		118	80	120			

Sample ID	LCS-25547		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 25547		RunNo: 34598					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067479		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	91.1	80	120			
Surr: BFB	1300		1000		127	80	120			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	mb-25547		SampType: MBLK		TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS		Batch ID: 25547		RunNo: 34585					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1066648		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	0.015	0.050								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	mb-25547		SampType: MBLK			TestCode: EPA Method 8260B: Volatiles				
Client ID:	PBS		Batch ID: 25547			RunNo: 34585				
Prep Date:	5/27/2016		Analysis Date: 6/1/2016			SeqNo: 1066648	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)	0.016	0.050								J
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.49		0.5000		97.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			

Sample ID	lcs-25547		SampType: LCS			TestCode: EPA Method 8260B: Volatiles				
Client ID:	LCSS		Batch ID: 25547			RunNo: 34585				
Prep Date:	5/27/2016		Analysis Date: 6/1/2016			SeqNo: 1066649	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.3	70	130			
Toluene	0.98	0.050	1.000	0	98.1	70	130			
Chlorobenzene	0.91	0.050	1.000	0	90.9	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	Ics-25547		SampType: LCS			TestCode: EPA Method 8260B: Volatiles				
Client ID:	LCSS		Batch ID: 25547			RunNo: 34585				
Prep Date:	5/27/2016		Analysis Date: 6/1/2016			SeqNo: 1066649		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.88	0.050	1.000	0	87.9	70	130			
Trichloroethene (TCE)	0.90	0.050	1.000	0	89.7	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		86.3	70	130			
Surr: Toluene-d8	0.50		0.5000		99.2	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			

Sample ID	100ng Ics		SampType: LCS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS		Batch ID: A34608		RunNo: 34608					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067223		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.025	1.000	0	99.4	70	130			
Toluene	0.95	0.050	1.000	0	94.5	70	130			
Chlorobenzene	0.93	0.050	1.000	0	93.5	70	130			
1,1-Dichloroethene	1.0	0.050	1.000	0	104	70	130			
Trichloroethene (TCE)	0.93	0.050	1.000	0	92.8	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		104	70	130			
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		109	70	130			
Surr: Toluene-d8	0.49		0.5000		98.1	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.5	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID: A34608			RunNo: 34608					
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067224		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)	0.026	0.050								J
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	0.022	0.20								J
Acetone	ND	0.75								
Bromobenzene	ND	0.050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID:	A34608	RunNo:	34608					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067224	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID: A34608			RunNo: 34608					
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067224	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.48		0.5000		95.8	70	130			
Surr: 1,2-Dichloroethane-d4	0.50		0.5000		101	70	130			
Surr: Toluene-d8	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	mb-25602	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25602	RunNo:	34771					
Prep Date:	6/1/2016	Analysis Date:	6/7/2016	SeqNo:	1072954	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	0.091	0.50								J
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	0.11	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	0.083	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	mb-25602	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25602	RunNo:	34771					
Prep Date:	6/1/2016	Analysis Date:	6/7/2016	SeqNo:	1072954	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								
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		61.6	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.7	35.7	103			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		72.4	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		75.2	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		73.1	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605B84

30-Jun-16

Client: Western Refining Company

Project: Well Installations

Sample ID	Ics-25602		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSS		Batch ID: 25602			RunNo: 34814				
Prep Date:	6/1/2016		Analysis Date: 6/9/2016			SeqNo: 1074352		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	78.6	45.8	99.8			
4-Chloro-3-methylphenol	2.5	0.50	3.330	0	74.3	51.5	103			
2-Chlorophenol	2.3	0.20	3.330	0	70.5	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	74.0	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	71.4	36	87.2			
N-Nitrosodi-n-propylamine	0.87	0.20	1.670	0	52.0	47.3	104			
4-Nitrophenol	2.6	0.25	3.330	0	77.0	47.3	95.3			
Pentachlorophenol	2.6	0.40	3.330	0	78.5	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.5	47.8	106			
Pyrene	1.4	0.20	1.670	0	81.5	33.4	105			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	79.6	50.4	115			
Surr: 2-Fluorophenol	1.9		3.330		58.2	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.5	35.7	103			
Surr: 2,4,6-Tribromophenol	2.8		3.330		82.8	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		70.7	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		80.7	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		65.2	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: **Western Refining Gallup**

Work Order Number: **1605B84**

RcptNo: 1

Received by/date:

AF

05/25/16

Logged By: **Ashley Gallegos**

5/25/2016 3:20:00 PM

Ag

Completed By: **Ashley Gallegos**

5/25/2016 4:40:58 PM

Ag

Reviewed By:

IO

05/26/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted?
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by:

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

July 08, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: North Drainage Ditch

OrderNo.: 1605C00

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/25/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C00**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	5/27/2016 4:23:26 PM	25517
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/27/2016 4:23:26 PM	25517
Surr: DNOP	92.7	0	70-141		%Rec	1	5/27/2016 4:23:26 PM	25517
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	5/31/2016 5:02:11 PM	A34579
Surr: BFB	85.1	0	66.4-120		%Rec	1	5/31/2016 5:02:11 PM	A34579
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.023	0.10		mg/L	1	5/26/2016 5:26:55 PM	R34520
Chloride	ND	0.027	0.50		mg/L	1	5/26/2016 5:26:55 PM	R34520
Sulfate	ND	0.064	0.50		mg/L	1	5/26/2016 5:26:55 PM	R34520
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/1/2016 4:18:28 PM	A34614
Beryllium	ND	0.00031	0.0020		mg/L	1	6/1/2016 4:18:28 PM	A34614
Cadmium	ND	0.00075	0.0020		mg/L	1	6/1/2016 4:18:28 PM	A34614
Chromium	ND	0.0018	0.0060		mg/L	1	6/1/2016 4:18:28 PM	A34614
Cobalt	ND	0.00074	0.0060		mg/L	1	6/1/2016 4:18:28 PM	A34614
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 4:18:28 PM	A34614
Manganese	0.00037	0.00032	0.0020	J	mg/L	1	6/1/2016 4:18:28 PM	A34614
Nickel	ND	0.0024	0.010		mg/L	1	6/1/2016 4:18:28 PM	A34614
Silver	ND	0.0028	0.0050		mg/L	1	6/1/2016 4:18:28 PM	A34614
Vanadium	ND	0.0013	0.050		mg/L	1	6/1/2016 4:18:28 PM	A34614
Zinc	0.040	0.0028	0.010		mg/L	1	6/1/2016 4:18:28 PM	A34614
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/1/2016 6:08:01 PM	B34614
Beryllium	ND	0.00031	0.0020		mg/L	1	6/1/2016 6:08:01 PM	B34614
Cadmium	ND	0.00075	0.0020		mg/L	1	6/1/2016 6:08:01 PM	B34614
Chromium	ND	0.0022	0.0060		mg/L	1	6/1/2016 6:08:01 PM	B34614
Cobalt	ND	0.00085	0.0060		mg/L	1	6/1/2016 6:08:01 PM	B34614
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 6:08:01 PM	B34614
Manganese	ND	0.0015	0.0020		mg/L	1	6/1/2016 6:08:01 PM	B34614
Nickel	ND	0.0024	0.010		mg/L	1	6/1/2016 6:08:01 PM	B34614
Silver	ND	0.0028	0.0050		mg/L	1	6/1/2016 6:08:01 PM	B34614
Vanadium	ND	0.0015	0.050		mg/L	1	6/1/2016 6:08:01 PM	B34614
Zinc	ND	0.0039	0.010		mg/L	1	6/1/2016 6:08:01 PM	B34614
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	5/31/2016 8:01:15 PM	A34588
Arsenic	ND	0.00014	0.0010		mg/L	1	5/31/2016 8:01:15 PM	A34588

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	ND	0.00017	0.00050		mg/L	1	5/31/2016 8:01:15 PM	A34588
Selenium	ND	0.00021	0.0010		mg/L	1	5/31/2016 8:01:15 PM	A34588
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/6/2016 7:00:28 PM	A34718
Arsenic	ND	0.00029	0.0010		mg/L	1	6/2/2016 1:41:58 PM	B34651
Lead	ND	0.00017	0.00050		mg/L	1	6/2/2016 1:41:58 PM	B34651
Selenium	ND	0.00021	0.0010		mg/L	1	6/2/2016 1:41:58 PM	B34651
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/1/2016 7:07:33 AM	25594
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Acenaphthylene	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Aniline	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Anthracene	ND	2.5	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Azobenzene	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzoic acid	ND	2.6	20		µg/L	1	6/1/2016 4:17:23 PM	25546
Benzyl alcohol	ND	3.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Bis(2-ethylhexyl)phthalate	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Carbazole	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Chloroaniline	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Chlorophenol	ND	2.2	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Chrysene	ND	2.8	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Di-n-octyl phthalate	ND	2.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C00**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/1/2016 4:17:23 PM	25546
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Diethyl phthalate	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Fluoranthene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Fluorene	ND	2.7	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Hexachloroethane	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Isophorone	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Methylphenol	ND	2.5	10		µg/L	1	6/1/2016 4:17:23 PM	25546
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/1/2016 4:17:23 PM	25546
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Naphthalene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Nitroaniline	ND	2.8	10		µg/L	1	6/1/2016 4:17:23 PM	25546
3-Nitroaniline	ND	2.9	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Nitroaniline	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Nitrobenzene	ND	2.8	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2-Nitrophenol	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
4-Nitrophenol	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Pentachlorophenol	ND	2.3	20		µg/L	1	6/1/2016 4:17:23 PM	25546
Phenanthrene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Phenol	ND	2.0	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Pyrene	ND	3.1	10		µg/L	1	6/1/2016 4:17:23 PM	25546

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/1/2016 4:17:23 PM	25546
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/1/2016 4:17:23 PM	25546
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/1/2016 4:17:23 PM	25546
Surr: 2-Fluorophenol	46.6	0	15-123		%Rec	1	6/1/2016 4:17:23 PM	25546
Surr: Phenol-d5	34.8	0	4.13-124		%Rec	1	6/1/2016 4:17:23 PM	25546
Surr: 2,4,6-Tribromophenol	73.6	0	18.4-134		%Rec	1	6/1/2016 4:17:23 PM	25546
Surr: Nitrobenzene-d5	63.4	0	28.8-134		%Rec	1	6/1/2016 4:17:23 PM	25546
Surr: 2-Fluorobiphenyl	55.7	0	35.9-125		%Rec	1	6/1/2016 4:17:23 PM	25546
Surr: 4-Terphenyl-d14	44.3	0	15-146		%Rec	1	6/1/2016 4:17:23 PM	25546
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Toluene	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Naphthalene	ND	0.093	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Acetone	ND	4.9	10		µg/L	1	6/2/2016 5:31:00 PM	A34663
Bromobenzene	ND	0.098	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Bromoform	ND	0.10	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Bromomethane	ND	0.78	3.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
2-Butanone	ND	0.74	10		µg/L	1	6/2/2016 5:31:00 PM	A34663
Carbon disulfide	ND	0.60	10		µg/L	1	6/2/2016 5:31:00 PM	A34663
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Chloroethane	ND	0.19	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Chloroform	ND	0.089	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Chloromethane	ND	0.21	3.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Dibromomethane	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
2-Hexanone	ND	0.84	10		µg/L	1	6/2/2016 5:31:00 PM	A34663
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/2/2016 5:31:00 PM	A34663
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Styrene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/2/2016 5:31:00 PM	A34663
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/2/2016 5:31:00 PM	A34663
Surr: 1,2-Dichloroethane-d4	78.1	0	70-130		%Rec	1	6/2/2016 5:31:00 PM	A34663
Surr: 4-Bromofluorobenzene	99.5	0	70-130		%Rec	1	6/2/2016 5:31:00 PM	A34663

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C00**

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: EB052416

Project: North Drainage Ditch

Collection Date: 5/24/2016 12:30:00 PM

Lab ID: 1605C00-001

Matrix: AQUEOUS

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	84.5	0	70-130		%Rec	1	6/2/2016 5:31:00 PM	A34663
Surr: Toluene-d8	85.9	0	70-130		%Rec	1	6/2/2016 5:31:00 PM	A34663

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/24/2016 10:50:00 AM

Lab ID: 1605C00-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.8	13		mg/Kg-dr	1	6/1/2016 6:44:59 PM	25570
Motor Oil Range Organics (MRO)	ND	67	67		mg/Kg-dr	1	6/1/2016 6:44:59 PM	25570
Surr: DNOP	92.6	0	70-130		%Rec	1	6/1/2016 6:44:59 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.80	3.9		mg/Kg-dr	1	6/2/2016 3:59:44 AM	25547
Surr: BFB	119	0	80-120		%Rec	1	6/2/2016 3:59:44 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	26	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.011	0.00075	0.044	J	mg/Kg-dr	1	6/2/2016 10:29:12 AM	25606
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	3.2	6.7		mg/Kg-dr	2	6/6/2016 11:20:45 AM	25604
Arsenic	1.5	0.98	3.4	J	mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Barium	400	0.13	0.27		mg/Kg-dr	2	6/6/2016 11:20:45 AM	25604
Beryllium	1.2	0.0062	0.20		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Cadmium	ND	0.085	0.13		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Chromium	13	0.17	0.40		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Cobalt	6.4	0.051	0.40		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Iron	20000	130	340		mg/Kg-dr	100	6/2/2016 3:08:24 PM	25604
Lead	6.4	0.24	0.34		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Manganese	530	0.12	0.27		mg/Kg-dr	2	6/6/2016 11:20:45 AM	25604
Nickel	12	0.15	0.67		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Selenium	ND	1.5	3.4		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Silver	ND	0.043	0.34		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Vanadium	21	0.047	3.4		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
Zinc	21	0.77	3.4		mg/Kg-dr	1	6/6/2016 11:08:09 AM	25604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Aniline	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Anthracene	ND	0.088	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benz(a)anthracene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/24/2016 10:50:00 AM

Lab ID: 1605C00-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.11	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Bis(2-chloroethoxy)methane	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Bis(2-chloroethyl)ether	ND	0.098	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Bis(2-ethylhexyl)phthalate	0.21	0.11	0.66	J	mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Carbazole	ND	0.090	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Chloro-3-methylphenol	ND	0.16	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Chloroaniline	ND	0.14	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2-Chloronaphthalene	ND	0.10	0.33		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2-Chlorophenol	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Di-n-butyl phthalate	0.11	0.099	0.53	J	mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Di-n-octyl phthalate	ND	0.11	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
3,3'-Dichlorobenzidine	ND	0.098	0.33		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Diethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4-Dichlorophenol	ND	0.12	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4-Dimethylphenol	ND	0.14	0.40		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.080	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4-Dinitrophenol	ND	0.088	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4-Dinitrotoluene	ND	0.12	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,6-Dinitrotoluene	ND	0.14	0.66		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Fluoranthene	ND	0.077	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Fluorene	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Hexachlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Hexachloroethane	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
1-Methylnaphthalene	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/24/2016 10:50:00 AM

Lab ID: 1605C00-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2-Methylphenol	ND	0.11	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
3+4-Methylphenol	ND	0.096	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Nitroaniline	ND	0.094	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Nitrobenzene	ND	0.14	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
4-Nitrophenol	ND	0.10	0.33		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Pentachlorophenol	ND	0.085	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Phenanthrene	ND	0.090	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Phenol	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Pyridine	ND	0.11	0.53		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
1,2,4-Trichlorobenzene	ND	0.14	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	6/7/2016 1:51:59 PM	25602
Surr: 2-Fluorophenol	50.6	0	28.3-102		%Rec	1	6/7/2016 1:51:59 PM	25602
Surr: Phenol-d5	60.1	0	35.7-103		%Rec	1	6/7/2016 1:51:59 PM	25602
Surr: 2,4,6-Tribromophenol	55.5	0	35.2-108		%Rec	1	6/7/2016 1:51:59 PM	25602
Surr: Nitrobenzene-d5	59.7		24-118		%Rec	1	6/7/2016 1:51:59 PM	25602
Surr: 2-Fluorobiphenyl	53.2		35.4-111		%Rec	1	6/7/2016 1:51:59 PM	25602
Surr: 4-Terphenyl-d14	85.5		15-91.7		%Rec	1	6/7/2016 1:51:59 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Toluene	0.793	0.246	2.03	J	µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Ethylbenzene	ND	0.273	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Methyl tert-butyl ether (MTBE)	ND	0.342	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.345	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.336	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Naphthalene	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1-Methylnaphthalene	ND	0.231	4.07		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
2-Methylnaphthalene	ND	0.535	4.07		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Acetone	24.8	0.602	10.2		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/24/2016 10:50:00 AM

Lab ID: 1605C00-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.207	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Bromodichloromethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Bromoform	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Bromomethane	ND	0.366	3.05		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
2-Butanone	2.31	0.733	10.2	J	µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Carbon disulfide	ND	0.752	10.2		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Carbon tetrachloride	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Chlorobenzene	ND	0.233	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Chloroethane	ND	0.375	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Chloroform	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Chloromethane	ND	0.515	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
2-Chlorotoluene	ND	0.346	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
4-Chlorotoluene	ND	0.338	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
cis-1,2-DCE	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
cis-1,3-Dichloropropene	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.216	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Dibromochloromethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Dibromomethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2-Dichlorobenzene	ND	0.296	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,3-Dichlorobenzene	ND	0.376	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,4-Dichlorobenzene	ND	0.381	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Dichlorodifluoromethane	ND	1.19	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1-Dichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1-Dichloroethene	ND	0.333	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2-Dichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,3-Dichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
2,2-Dichloropropane	ND	0.257	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1-Dichloropropene	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Hexachlorobutadiene	ND	0.464	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
2-Hexanone	ND	0.506	10.2		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Isopropylbenzene	ND	0.256	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
4-Isopropyltoluene	ND	0.382	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
4-Methyl-2-pentanone	ND	4.07	10.2		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Methylene chloride	ND	2.03	3.05		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
n-Butylbenzene	ND	0.495	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
n-Propylbenzene	ND	0.364	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
sec-Butylbenzene	ND	0.361	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Styrene	ND	0.260	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
tert-Butylbenzene	ND	0.297	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/24/2016 10:50:00 AM

Lab ID: 1605C00-002

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Tetrachloroethene (PCE)	ND	0.267	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
trans-1,2-DCE	ND	0.205	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
trans-1,3-Dichloropropene	ND	0.246	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.492	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.617	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1,1-Trichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,1,2-Trichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Trichloroethene (TCE)	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Trichlorofluoromethane	ND	0.256	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
1,2,3-Trichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Vinyl chloride	ND	0.535	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Xylenes, Total	ND	0.811	2.03		µg/Kg-dry	1	5/26/2016 9:30:00 PM	25524
Surr: 1,2-Dichloroethane-d4	95.5	0	70-130		%Rec	1	5/26/2016 9:30:00 PM	25524
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	5/26/2016 9:30:00 PM	25524
Surr: Dibromofluoromethane	85.1	0	70-130		%Rec	1	5/26/2016 9:30:00 PM	25524
Surr: Toluene-d8	98.2	0	70-130		%Rec	1	5/26/2016 9:30:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:00:00 AM

Lab ID: 1605C00-003

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.6	13		mg/Kg-dr	1	6/1/2016 7:06:33 PM	25570
Motor Oil Range Organics (MRO)	ND	64	64		mg/Kg-dr	1	6/1/2016 7:06:33 PM	25570
Surr: DNOP	93.4	0	70-130		%Rec	1	6/1/2016 7:06:33 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.68	3.3		mg/Kg-dr	1	6/2/2016 4:23:15 AM	25547
Surr: BFB	118	0	80-120		%Rec	1	6/2/2016 4:23:15 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	24	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0057	0.00075	0.044	J	mg/Kg-dr	1	6/2/2016 10:34:29 AM	25606
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	4.7	3.1	6.4	J	mg/Kg-dr	2	6/6/2016 11:31:33 AM	25604
Arsenic	2.2	0.94	3.2	J	mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Barium	380	0.13	0.26		mg/Kg-dr	2	6/6/2016 11:31:33 AM	25604
Beryllium	1.4	0.0060	0.19		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Cadmium	ND	0.082	0.13		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Chromium	13	0.16	0.39		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Cobalt	6.6	0.049	0.39		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Iron	23000	130	320		mg/Kg-dr	100	6/2/2016 3:09:56 PM	25604
Lead	5.3	0.23	0.32		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Manganese	580	0.11	0.26		mg/Kg-dr	2	6/6/2016 11:31:33 AM	25604
Nickel	12	0.15	0.64		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Selenium	ND	1.4	3.2		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Silver	ND	0.041	0.32		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Vanadium	23	0.045	3.2		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
Zinc	19	0.74	3.2		mg/Kg-dr	1	6/6/2016 11:15:27 AM	25604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Acenaphthylene	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Aniline	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Anthracene	ND	0.086	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Azobenzene	ND	0.16	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benz(a)anthracene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benzo(a)pyrene	ND	0.098	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benzo(b)fluoranthene	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benzo(g,h,i)perylene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benzo(k)fluoranthene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:00:00 AM

Lab ID: 1605C00-003

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.11	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Benzyl alcohol	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Bis(2-chloroethoxy)methane	ND	0.14	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Bis(2-chloroethyl)ether	ND	0.095	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Bis(2-ethylhexyl)phthalate	0.17	0.11	0.65	J	mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Bromophenyl phenyl ether	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Butyl benzyl phthalate	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Carbazole	ND	0.087	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Chloro-3-methylphenol	ND	0.15	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Chloroaniline	ND	0.14	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2-Chloronaphthalene	ND	0.10	0.32		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2-Chlorophenol	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Chlorophenyl phenyl ether	ND	0.15	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Chrysene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Di-n-butyl phthalate	0.12	0.096	0.52	J	mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Di-n-octyl phthalate	ND	0.11	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Dibenz(a,h)anthracene	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Dibenzofuran	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
1,2-Dichlorobenzene	ND	0.099	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
1,3-Dichlorobenzene	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
1,4-Dichlorobenzene	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
3,3'-Dichlorobenzidine	ND	0.095	0.32		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Diethyl phthalate	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Dimethyl phthalate	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4-Dichlorophenol	ND	0.12	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4-Dimethylphenol	ND	0.14	0.39		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.078	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4-Dinitrophenol	ND	0.086	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4-Dinitrotoluene	ND	0.12	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,6-Dinitrotoluene	ND	0.14	0.65		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Fluoranthene	ND	0.074	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Fluorene	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Hexachlorobenzene	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Hexachlorobutadiene	ND	0.15	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Hexachlorocyclopentadiene	ND	0.15	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Hexachloroethane	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.10	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
1-Methylnaphthalene	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** NDD-16 (1.5-2')**Project:** North Drainage Ditch**Collection Date:** 5/24/2016 11:00:00 AM**Lab ID:** 1605C00-003**Matrix:** SOIL**Received Date:** 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.15	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2-Methylphenol	ND	0.11	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
3+4-Methylphenol	ND	0.093	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
N-Nitrosodi-n-propylamine	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
N-Nitrosodiphenylamine	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Naphthalene	ND	0.12	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2-Nitroaniline	ND	0.14	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
3-Nitroaniline	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Nitroaniline	ND	0.091	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Nitrobenzene	ND	0.13	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2-Nitrophenol	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
4-Nitrophenol	ND	0.098	0.32		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Pentachlorophenol	ND	0.083	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Phenanthrene	ND	0.088	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Phenol	ND	0.097	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Pyrene	ND	0.097	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Pyridine	ND	0.10	0.52		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
1,2,4-Trichlorobenzene	ND	0.14	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4,5-Trichlorophenol	ND	0.13	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
2,4,6-Trichlorophenol	ND	0.11	0.26		mg/Kg-dr	1	6/7/2016 2:22:51 PM	25602
Surr: 2-Fluorophenol	67.5	0	28.3-102		%Rec	1	6/7/2016 2:22:51 PM	25602
Surr: Phenol-d5	71.7	0	35.7-103		%Rec	1	6/7/2016 2:22:51 PM	25602
Surr: 2,4,6-Tribromophenol	62.4	0	35.2-108		%Rec	1	6/7/2016 2:22:51 PM	25602
Surr: Nitrobenzene-d5	73.9		24-118		%Rec	1	6/7/2016 2:22:51 PM	25602
Surr: 2-Fluorobiphenyl	64.1		35.4-111		%Rec	1	6/7/2016 2:22:51 PM	25602
Surr: 4-Terphenyl-d14	59.7		15-91.7		%Rec	1	6/7/2016 2:22:51 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	16.5	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Toluene	1.51	0.249	2.06	J	µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Ethylbenzene	ND	0.277	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Methyl tert-butyl ether (MTBE)	2.32	0.346	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.349	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.340	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2-Dichloroethane (EDC)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2-Dibromoethane (EDB)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Naphthalene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1-Methylnaphthalene	ND	0.234	4.12		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
2-Methylnaphthalene	ND	0.542	4.12		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Acetone	10.2	0.610	10.3	J	µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:00:00 AM

Lab ID: 1605C00-003

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.210	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Bromodichloromethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Bromoform	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Bromomethane	ND	0.371	3.09		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
2-Butanone	ND	0.743	10.3		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Carbon disulfide	ND	0.762	10.3		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Carbon tetrachloride	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Chlorobenzene	ND	0.236	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Chloroethane	ND	0.380	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Chloroform	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Chloromethane	ND	0.522	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
2-Chlorotoluene	ND	0.351	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
4-Chlorotoluene	ND	0.342	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
cis-1,2-DCE	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
cis-1,3-Dichloropropene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.219	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Dibromochloromethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Dibromomethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2-Dichlorobenzene	ND	0.300	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,3-Dichlorobenzene	ND	0.380	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,4-Dichlorobenzene	ND	0.386	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Dichlorodifluoromethane	ND	1.20	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1-Dichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1-Dichloroethene	ND	0.337	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2-Dichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,3-Dichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
2,2-Dichloropropane	ND	0.260	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1-Dichloropropene	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Hexachlorobutadiene	ND	0.470	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
2-Hexanone	ND	0.513	10.3		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Isopropylbenzene	ND	0.259	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
4-Isopropyltoluene	ND	0.387	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
4-Methyl-2-pentanone	ND	4.12	10.3		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Methylene chloride	ND	2.06	3.09		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
n-Butylbenzene	ND	0.502	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
n-Propylbenzene	ND	0.369	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
sec-Butylbenzene	ND	0.366	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Styrene	ND	0.263	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
tert-Butylbenzene	ND	0.301	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:00:00 AM

Lab ID: 1605C00-003

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Tetrachloroethene (PCE)	ND	0.271	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
trans-1,2-DCE	ND	0.208	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
trans-1,3-Dichloropropene	ND	0.249	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.499	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.625	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1,1-Trichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,1,2-Trichloroethane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Trichloroethene (TCE)	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Trichlorofluoromethane	ND	0.259	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
1,2,3-Trichloropropane	ND	2.06	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Vinyl chloride	ND	0.542	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Xylenes, Total	ND	0.821	2.06		µg/Kg-dry	1	5/26/2016 9:55:00 PM	25524
Surr: 1,2-Dichloroethane-d4	94.3	0	70-130		%Rec	1	5/26/2016 9:55:00 PM	25524
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	5/26/2016 9:55:00 PM	25524
Surr: Dibromofluoromethane	86.1	0	70-130		%Rec	1	5/26/2016 9:55:00 PM	25524
Surr: Toluene-d8	96.2	0	70-130		%Rec	1	5/26/2016 9:55:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (14-16')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:10:00 AM

Lab ID: 1605C00-004

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.2	12		mg/Kg-dr	1	6/1/2016 7:28:05 PM	25570
Motor Oil Range Organics (MRO)	ND	58	58		mg/Kg-dr	1	6/1/2016 7:28:05 PM	25570
Surr: DNOP	92.8	0	70-130		%Rec	1	6/1/2016 7:28:05 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.64	3.1		mg/Kg-dr	1	6/2/2016 4:46:51 AM	25547
Surr: BFB	115	0	80-120		%Rec	1	6/2/2016 4:46:51 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	16	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0039	0.00068	0.039	J	mg/Kg-dr	1	6/2/2016 10:36:17 AM	25606
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	6.0		mg/Kg-dr	2	6/6/2016 11:34:46 AM	25604
Arsenic	1.5	0.87	3.0	J	mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Barium	430	0.12	0.24		mg/Kg-dr	2	6/6/2016 11:34:46 AM	25604
Beryllium	0.82	0.0055	0.18		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Cadmium	ND	0.076	0.12		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Chromium	8.0	0.15	0.36		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Cobalt	4.6	0.045	0.36		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Iron	15000	120	300		mg/Kg-dr	100	6/2/2016 3:11:27 PM	25604
Lead	3.3	0.21	0.30		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Manganese	480	0.11	0.24		mg/Kg-dr	2	6/6/2016 11:34:46 AM	25604
Nickel	7.8	0.14	0.60		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Vanadium	19	0.041	3.0		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
Zinc	15	0.68	3.0		mg/Kg-dr	1	6/6/2016 11:17:14 AM	25604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Acenaphthylene	ND	0.097	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Aniline	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Anthracene	ND	0.079	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Azobenzene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benzo(a)pyrene	ND	0.090	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benzo(g,h,i)perylene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benzo(k)fluoranthene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (14-16')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:10:00 AM

Lab ID: 1605C00-004

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.098	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Benzyl alcohol	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Bis(2-chloroethyl)ether	ND	0.087	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Bis(2-ethylhexyl)phthalate	0.14	0.097	0.59	J	mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Carbazole	ND	0.080	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Chloro-3-methylphenol	ND	0.14	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Chloroaniline	ND	0.13	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2-Chloronaphthalene	ND	0.093	0.30		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2-Chlorophenol	ND	0.094	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Di-n-butyl phthalate	0.12	0.089	0.47	J	mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Dibenz(a,h)anthracene	ND	0.096	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
1,2-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
1,3-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
3,3'-Dichlorobenzidine	ND	0.087	0.30		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4,6-Dinitro-2-methylphenol	ND	0.072	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4-Dinitrophenol	ND	0.079	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4-Dinitrotoluene	ND	0.11	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,6-Dinitrotoluene	ND	0.13	0.59		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Fluoranthene	ND	0.068	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Hexachlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Indeno(1,2,3-cd)pyrene	ND	0.093	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (14-16')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:10:00 AM

Lab ID: 1605C00-004

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2-Methylphenol	ND	0.099	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
3+4-Methylphenol	ND	0.086	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
3-Nitroaniline	ND	0.10	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Nitroaniline	ND	0.084	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
4-Nitrophenol	ND	0.090	0.30		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Pentachlorophenol	ND	0.076	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Phenanthrene	ND	0.081	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Phenol	ND	0.089	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Pyrene	ND	0.090	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Pyridine	ND	0.094	0.47		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
2,4,6-Trichlorophenol	ND	0.098	0.24		mg/Kg-dr	1	6/7/2016 2:53:01 PM	25602
Surr: 2-Fluorophenol	46.8	0	28.3-102		%Rec	1	6/7/2016 2:53:01 PM	25602
Surr: Phenol-d5	54.4	0	35.7-103		%Rec	1	6/7/2016 2:53:01 PM	25602
Surr: 2,4,6-Tribromophenol	52.2	0	35.2-108		%Rec	1	6/7/2016 2:53:01 PM	25602
Surr: Nitrobenzene-d5	54.4		24-118		%Rec	1	6/7/2016 2:53:01 PM	25602
Surr: 2-Fluorobiphenyl	52.6		35.4-111		%Rec	1	6/7/2016 2:53:01 PM	25602
Surr: 4-Terphenyl-d14	54.6		15-91.7		%Rec	1	6/7/2016 2:53:01 PM	25602
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Toluene	1.06	0.206	1.70	J	µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Ethylbenzene	ND	0.229	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Methyl tert-butyl ether (MTBE)	0.486	0.286	1.70	J	µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2,4-Trimethylbenzene	ND	0.289	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,3,5-Trimethylbenzene	ND	0.281	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2-Dichloroethane (EDC)	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2-Dibromoethane (EDB)	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Naphthalene	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1-Methylnaphthalene	ND	0.194	3.41		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
2-Methylnaphthalene	ND	0.448	3.41		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Acetone	17.1	0.504	8.52		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (14-16')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:10:00 AM

Lab ID: 1605C00-004

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.173	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Bromodichloromethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Bromoform	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Bromomethane	ND	0.307	2.56		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
2-Butanone	ND	0.614	8.52		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Carbon disulfide	ND	0.630	8.52		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Carbon tetrachloride	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Chlorobenzene	ND	0.195	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Chloroethane	ND	0.314	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Chloroform	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Chloromethane	ND	0.432	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
2-Chlorotoluene	ND	0.290	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
4-Chlorotoluene	ND	0.283	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
cis-1,2-DCE	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
cis-1,3-Dichloropropene	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2-Dibromo-3-chloropropane	ND	0.181	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Dibromochloromethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Dibromomethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2-Dichlorobenzene	ND	0.248	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,3-Dichlorobenzene	ND	0.315	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,4-Dichlorobenzene	ND	0.319	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Dichlorodifluoromethane	ND	0.995	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1-Dichloroethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1-Dichloroethene	ND	0.279	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2-Dichloropropane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,3-Dichloropropane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
2,2-Dichloropropane	ND	0.215	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1-Dichloropropene	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Hexachlorobutadiene	ND	0.388	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
2-Hexanone	ND	0.424	8.52		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Isopropylbenzene	ND	0.214	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
4-Isopropyltoluene	ND	0.320	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
4-Methyl-2-pentanone	ND	3.41	8.52		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Methylene chloride	ND	1.70	2.56		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
n-Butylbenzene	ND	0.415	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
n-Propylbenzene	ND	0.305	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
sec-Butylbenzene	ND	0.302	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Styrene	ND	0.218	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
tert-Butylbenzene	ND	0.249	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (14-16')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:10:00 AM

Lab ID: 1605C00-004

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1,2,2-Tetrachloroethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Tetrachloroethene (PCE)	ND	0.224	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
trans-1,2-DCE	ND	0.172	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
trans-1,3-Dichloropropene	ND	0.206	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2,3-Trichlorobenzene	ND	0.412	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2,4-Trichlorobenzene	ND	0.517	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1,1-Trichloroethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,1,2-Trichloroethane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Trichloroethene (TCE)	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Trichlorofluoromethane	ND	0.214	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
1,2,3-Trichloropropane	ND	1.70	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Vinyl chloride	ND	0.448	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Xylenes, Total	ND	0.679	1.70		µg/Kg-dry	1	5/26/2016 10:20:00 PM	25524
Surr: 1,2-Dichloroethane-d4	98.8	0	70-130		%Rec	1	5/26/2016 10:20:00 PM	25524
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	5/26/2016 10:20:00 PM	25524
Surr: Dibromofluoromethane	86.6	0	70-130		%Rec	1	5/26/2016 10:20:00 PM	25524
Surr: Toluene-d8	98.2	0	70-130		%Rec	1	5/26/2016 10:20:00 PM	25524

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (22-24')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:25:00 AM

Lab ID: 1605C00-005

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.1	11		mg/Kg-dr	1	6/1/2016 7:49:32 PM	25570
Motor Oil Range Organics (MRO)	ND	57	57		mg/Kg-dr	1	6/1/2016 7:49:32 PM	25570
Surr: DNOP	93.7	0	70-130		%Rec	1	6/1/2016 7:49:32 PM	25570
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.75	3.7		mg/Kg-dr	1	6/2/2016 5:10:31 AM	25547
Surr: BFB	119	0	80-120		%Rec	1	6/2/2016 5:10:31 AM	25547
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	17	1.0	1.0		wt%	1	5/26/2016	R34522
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0015	0.00068	0.039	J	mg/Kg-dr	1	6/2/2016 10:38:05 AM	25606
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	7.1	15		mg/Kg-dr	5	6/7/2016 2:25:36 PM	25604
Arsenic	4.0	0.88	3.0		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Barium	1400	0.29	0.60		mg/Kg-dr	5	6/7/2016 2:25:36 PM	25604
Beryllium	1.0	0.0055	0.18		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Cadmium	ND	0.076	0.12		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Chromium	12	0.15	0.36		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Cobalt	7.5	0.046	0.36		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Iron	20000	120	300		mg/Kg-dr	100	6/2/2016 3:18:59 PM	25604
Lead	ND	0.21	0.30		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Manganese	710	0.27	0.60		mg/Kg-dr	5	6/7/2016 2:25:36 PM	25604
Nickel	13	0.14	0.60		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Vanadium	18	0.042	3.0		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
Zinc	28	0.68	3.0		mg/Kg-dr	1	6/6/2016 11:18:59 AM	25604
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Acenaphthylene	ND	0.097	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Aniline	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Anthracene	ND	0.079	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benzo(a)pyrene	ND	0.090	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** NDD-16 (22-24')**Project:** North Drainage Ditch**Collection Date:** 5/24/2016 11:25:00 AM**Lab ID:** 1605C00-005**Matrix:** SOIL**Received Date:** 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Benzoic acid	ND	0.099	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Benzyl alcohol	ND	0.094	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Bis(2-chloroethyl)ether	ND	0.088	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Bis(2-ethylhexyl)phthalate	0.12	0.097	0.60	J	mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Carbazole	ND	0.081	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Chloro-3-methylphenol	ND	0.14	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Chloroaniline	ND	0.13	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2-Chloronaphthalene	ND	0.094	0.30		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2-Chlorophenol	ND	0.094	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Di-n-butyl phthalate	0.098	0.089	0.48	J	mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Di-n-octyl phthalate	ND	0.10	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Dibenz(a,h)anthracene	ND	0.097	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
1,2-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
1,3-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
3,3'-Dichlorobenzidine	ND	0.088	0.30		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4-Dichlorophenol	ND	0.11	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4,6-Dinitro-2-methylphenol	ND	0.072	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4-Dinitrophenol	ND	0.079	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4-Dinitrotoluene	ND	0.11	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,6-Dinitrotoluene	ND	0.13	0.60		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Fluoranthene	ND	0.069	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Hexachlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Indeno(1,2,3-cd)pyrene	ND	0.093	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (22-24')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:25:00 AM

Lab ID: 1605C00-005

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2-Methylphenol	ND	0.10	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
3+4-Methylphenol	ND	0.087	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Nitroaniline	ND	0.084	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Nitrobenzene	ND	0.12	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
4-Nitrophenol	ND	0.091	0.30		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Pentachlorophenol	ND	0.077	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Phenanthrene	ND	0.081	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Phenol	ND	0.090	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Pyrene	ND	0.090	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Pyridine	ND	0.095	0.48		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
2,4,6-Trichlorophenol	ND	0.099	0.24		mg/Kg-dr	1	6/9/2016 11:35:52 AM	25633
Surr: 2-Fluorophenol	46.8	0	28.3-102		%Rec	1	6/9/2016 11:35:52 AM	25633
Surr: Phenol-d5	51.6	0	35.7-103		%Rec	1	6/9/2016 11:35:52 AM	25633
Surr: 2,4,6-Tribromophenol	66.0	0	35.2-108		%Rec	1	6/9/2016 11:35:52 AM	25633
Surr: Nitrobenzene-d5	51.9		24-118		%Rec	1	6/9/2016 11:35:52 AM	25633
Surr: 2-Fluorobiphenyl	58.4		35.4-111		%Rec	1	6/9/2016 11:35:52 AM	25633
Surr: 4-Terphenyl-d14	37.1		15-91.7		%Rec	1	6/9/2016 11:35:52 AM	25633
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Toluene	1.05	0.235	1.94	J	µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Ethylbenzene	ND	0.261	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Methyl tert-butyl ether (MTBE)	ND	0.327	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2,4-Trimethylbenzene	ND	0.330	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,3,5-Trimethylbenzene	ND	0.321	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2-Dichloroethane (EDC)	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2-Dibromoethane (EDB)	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Naphthalene	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1-Methylnaphthalene	ND	0.221	3.89		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
2-Methylnaphthalene	ND	0.512	3.89		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Acetone	6.38	0.575	9.72	J	µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (22-24')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:25:00 AM

Lab ID: 1605C00-005

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromobenzene	ND	0.198	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Bromodichloromethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Bromoform	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Bromomethane	ND	0.350	2.92		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
2-Butanone	ND	0.701	9.72		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Carbon disulfide	ND	0.719	9.72		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Carbon tetrachloride	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Chlorobenzene	ND	0.223	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Chloroethane	ND	0.359	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Chloroform	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Chloromethane	ND	0.493	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
2-Chlorotoluene	ND	0.331	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
4-Chlorotoluene	ND	0.323	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
cis-1,2-DCE	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
cis-1,3-Dichloropropene	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2-Dibromo-3-chloropropane	ND	0.207	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Dibromochloromethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Dibromomethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2-Dichlorobenzene	ND	0.283	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,3-Dichlorobenzene	ND	0.359	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,4-Dichlorobenzene	ND	0.364	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Dichlorodifluoromethane	ND	1.14	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1-Dichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1-Dichloroethene	ND	0.318	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2-Dichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,3-Dichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
2,2-Dichloropropane	ND	0.246	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1-Dichloropropene	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Hexachlorobutadiene	ND	0.443	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
2-Hexanone	ND	0.484	9.72		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Isopropylbenzene	ND	0.245	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
4-Isopropyltoluene	ND	0.365	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
4-Methyl-2-pentanone	ND	3.89	9.72		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Methylene chloride	ND	1.94	2.92		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
n-Butylbenzene	ND	0.473	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
n-Propylbenzene	ND	0.348	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
sec-Butylbenzene	ND	0.345	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Styrene	ND	0.248	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
tert-Butylbenzene	ND	0.284	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C00

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-16 (22-24')

Project: North Drainage Ditch

Collection Date: 5/24/2016 11:25:00 AM

Lab ID: 1605C00-005

Matrix: SOIL

Received Date: 5/25/2016 3:20:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
1,1,1,2-Tetrachloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1,2,2-Tetrachloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Tetrachloroethene (PCE)	ND	0.255	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
trans-1,2-DCE	ND	0.196	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
trans-1,3-Dichloropropene	ND	0.235	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2,3-Trichlorobenzene	ND	0.471	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2,4-Trichlorobenzene	ND	0.590	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1,1-Trichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,1,2-Trichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Trichloroethene (TCE)	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Trichlorofluoromethane	ND	0.244	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
1,2,3-Trichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Vinyl chloride	ND	0.511	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Xylenes, Total	ND	0.775	1.94		µg/Kg-dry	1	5/27/2016 5:46:00 PM	25556
Surr: 1,2-Dichloroethane-d4	92.9	0	70-130		%Rec	1	5/27/2016 5:46:00 PM	25556
Surr: 4-Bromofluorobenzene	99.6	0	70-130		%Rec	1	5/27/2016 5:46:00 PM	25556
Surr: Dibromofluoromethane	84.7	0	70-130		%Rec	1	5/27/2016 5:46:00 PM	25556
Surr: Toluene-d8	96.9	0	70-130		%Rec	1	5/27/2016 5:46:00 PM	25556

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531013
Project Name: 1605C00

Analytical Results Report

Sample Number	160531013-001	Sampling Date	5/24/2016	Date/Time Received	5/27/2016	12:15 PM		
Client Sample ID	1605C00-001G / EB052416	Sampling Time	12:30 PM					
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.006	0.01	6/6/2016	MER	EPA 335.4	
Cyanide (wad)	0.00795	mg/L	0.006	0.01	6/7/2016	MER	SM4500CNI	J

Sample Number	160531013-002	Sampling Date	5/24/2016	Date/Time Received	5/27/2016	12:15 PM		
Client Sample ID	1605C00-002C / NDD-16 (0-0.5')	Sampling Time	11:00 AM					
Matrix	Soil	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.153	0.306	6/6/2016	MER	EPA 335.4	
%moisture	25.9	Percent			6/1/2016	MER	%moisture	

Sample Number	160531013-003	Sampling Date	5/24/2016	Date/Time Received	5/27/2016	12:15 PM		
Client Sample ID	1605C00-003C / NDD-16 (1.5-2')	Sampling Time	11:00 AM					
Matrix	Soil	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.159	0.318	6/6/2016	MER	EPA 335.4	
%moisture	22.9	Percent			6/1/2016	MER	%moisture	

Sample Number	160531013-004	Sampling Date	5/24/2016	Date/Time Received	5/27/2016	12:15 PM		
Client Sample ID	1605C00-004C / NDD-16 (14-16')	Sampling Time	11:10 AM					
Matrix	Soil	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.135	0.27	6/6/2016	MER	EPA 335.4	
%moisture	16.5	Percent			6/1/2016	MER	%moisture	

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.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

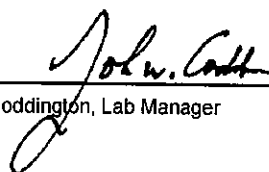
Batch #: 160531013
Project Name: 1605C00

Analytical Results Report

Sample Number	160531013-005	Sampling Date	5/24/2016	Date/Time Received	5/27/2016 12:15 PM
Client Sample ID	1605C00-005C / NDD-16 (22-24')	Sampling Time	11:25 AM		
Matrix	Soil	Sample Location			
Comments					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.190	mg/Kg	0.146	0.292	6/6/2016	MER	EPA 335.4	J
%moisture	16.1	Percent			6/1/2016	MER	%moisture	

Authorized Signature


John Coddington, Lab Manager

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.

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160531013
Project Name: 1605C00

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide (wad)	0.532	mg/L	0.5	106.4	80-120	6/7/2016	6/7/2016
Cyanide	0.535	mg/L	0.5	107.0	90-110	6/6/2016	6/6/2016
Cyanide	0.535	mg/kg	0.5	107.0	90-110	6/6/2016	6/6/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160531013-001	Cyanide (wad)	0.00795	0.518	mg/L	0.5	103.6	80-120	6/7/2016	6/7/2016
160531013-001	Cyanide	ND	0.518	mg/L	0.5	103.6	90-110	6/6/2016	6/6/2016
160531013-002	Cyanide	ND	16.1	mg/kg	15.3	105.2	70-130	6/6/2016	6/6/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide (wad)	0.545	mg/L	0.5	109.0	5.1	0-25	6/7/2016	6/7/2016
Cyanide	0.528	mg/L	0.5	105.6	1.9	0-20	6/6/2016	6/6/2016
Cyanide	15.5	mg/kg	15.3	101.3	3.8	0-25	6/6/2016	6/6/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	6/6/2016	6/6/2016
Cyanide	ND	mg/Kg	0.2	6/6/2016	6/6/2016
Cyanide (wad)	ND	mg/L	0.01	6/7/2016	6/7/2016

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

Wednesday, June 15, 2016

Page 1 of 1

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-B	SampType: MBLK			TestCode: EPA Method 200.7: Metals						
Client ID:	PBW	Batch ID: B34614			RunNo: 34614						
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067279		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	LCS-B	SampType:	LCS	TestCode:	EPA Method 200.7: Metals						
Client ID:	LCSW	Batch ID:	B34614	RunNo:	34614						
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067280	Units:	mg/L				
Analyte		Result	POL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.49	0.0020	0.5000	0	98.7	85	115			
Beryllium	0.52	0.0020	0.5000	0	103	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Chromium	0.48	0.0060	0.5000	0	96.4	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.9	85	115			
Iron	0.49	0.020	0.5000	0	98.1	85	115			
Manganese	0.49	0.0020	0.5000	0	97.3	85	115			
Nickel	0.47	0.010	0.5000	0	93.1	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Vanadium	0.52	0.050	0.5000	0	104	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	85	115			

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Metals					
Client ID:	BatchQC		Batch ID: B34614		RunNo: 34614					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067281		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.0021	0.0020	0.002000	0	106	50	150			
Beryllium	0.0021	0.0020	0.002000	0	104	50	150			
Cadmium	0.0020	0.0020	0.002000	0	99.0	50	150			J
Chromium	0.0065	0.0060	0.006000	0	108	50	150			
Cobalt	0.0060	0.0060	0.006000	0	101	50	150			
Iron	0.020	0.020	0.02000	0	98.6	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID LL LCS-B	SampType: LCSLL			TestCode: EPA Method 200.7: Metals						
Client ID: BatchQC	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067281		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0021	0.0020	0.002000	0	105	50	150			
Nickel	0.0050	0.010	0.005000	0	101	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.4	50	150			J
Vanadium	0.010	0.050	0.01000	0	101	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Sample ID 1605C00-001EMS	SampType: MS			TestCode: EPA Method 200.7: Metals						
Client ID: EB052416	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067407		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	97.3	70	130			
Beryllium	0.51	0.0020	0.5000	0	103	70	130			
Cadmium	0.51	0.0020	0.5000	0	103	70	130			
Chromium	0.48	0.0060	0.5000	0	96.6	70	130			
Cobalt	0.47	0.0060	0.5000	0	93.7	70	130			
Iron	0.49	0.020	0.5000	0	97.5	70	130			
Manganese	0.48	0.0020	0.5000	0	96.1	70	130			
Nickel	0.47	0.010	0.5000	0	94.6	70	130			
Silver	0.10	0.0050	0.1000	0	103	70	130			
Vanadium	0.51	0.050	0.5000	0	103	70	130			
Zinc	0.48	0.010	0.5000	0	95.2	70	130			

Sample ID 1605C00-001EMSD	SampType: MSD			TestCode: EPA Method 200.7: Metals						
Client ID: EB052416	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067408		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	97.0	70	130	0.303	20	
Beryllium	0.52	0.0020	0.5000	0	103	70	130	0.387	20	
Cadmium	0.51	0.0020	0.5000	0	103	70	130	0.129	20	
Chromium	0.48	0.0060	0.5000	0	96.5	70	130	0.0932	20	
Cobalt	0.47	0.0060	0.5000	0	93.5	70	130	0.145	20	
Iron	0.49	0.020	0.5000	0	97.1	70	130	0.376	20	
Manganese	0.48	0.0020	0.5000	0	95.9	70	130	0.133	20	
Nickel	0.47	0.010	0.5000	0	94.3	70	130	0.362	20	
Silver	0.10	0.0050	0.1000	0	103	70	130	0.477	20	
Vanadium	0.51	0.050	0.5000	0	102	70	130	0.426	20	
Zinc	0.48	0.010	0.5000	0	95.3	70	130	0.0798	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-A	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067276	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	LCS-A	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067277	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	97.1	85	115			
Beryllium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.8	85	115			
Chromium	0.48	0.0060	0.5000	0	96.1	85	115			
Cobalt	0.47	0.0060	0.5000	0	93.5	85	115			
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Manganese	0.48	0.0020	0.5000	0	96.1	85	115			
Nickel	0.46	0.010	0.5000	0	92.5	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Vanadium	0.51	0.050	0.5000	0	102	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	85	115			

Sample ID	LLCS-A	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067278	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	108	50	150			
Cadmium	0.0023	0.0020	0.002000	0	116	50	150			
Chromium	0.0063	0.0060	0.006000	0	105	50	150			
Cobalt	0.0060	0.0060	0.006000	0	99.5	50	150			J
Iron	0.021	0.020	0.02000	0	105	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LLLCS-A	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067278	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0022	0.0020	0.002000	0	109	50	150			
Nickel	0.0059	0.010	0.005000	0	118	50	150			J
Silver	0.0051	0.0050	0.005000	0	101	50	150			
Vanadium	0.010	0.050	0.01000	0	99.6	50	150			J
Zinc	0.0060	0.010	0.005000	0	121	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068640		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.2	85	115			
Lead	0.012	0.00050	0.01250	0	95.7	85	115			
Selenium	0.025	0.0010	0.02500	0	99.8	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Metals						
Client ID: BatchQC	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068643		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00096	0.0010	0.001000	0	95.5	50	150			J
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Selenium	0.0010	0.0010	0.001000	0	101	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068644		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 LCS	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: A34718			RunNo: 34718						
Prep Date:	Analysis Date: 6/6/2016			SeqNo: 1071083		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.024	0.0010	0.02500	0	95.3	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Metals						
Client ID: BatchQC	Batch ID: A34718			RunNo: 34718						
Prep Date:	Analysis Date: 6/6/2016			SeqNo: 1071085		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00098	0.0010	0.001000	0	97.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	A34718	RunNo:	34718					
Prep Date:		Analysis Date:	6/6/2016	SeqNo:	1071086	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34588		RunNo: 34588					
Prep Date:			Analysis Date: 5/31/2016		SeqNo: 1066706		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	96.4	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.9	85	115			
Lead	0.012	0.00050	0.01250	0	96.1	85	115			
Selenium	0.025	0.0010	0.02500	0	100	85	115			

Sample ID	LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: A34588			RunNo: 34588					
Prep Date:		Analysis Date: 5/31/2016			SeqNo: 1066709		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00093	0.0010	0.001000	0	92.8	50	150			J
Arsenic	0.0011	0.0010	0.001000	0	105	50	150			
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.0011	0.0010	0.001000	0	109	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A34588			RunNo: 34588					
Prep Date:		Analysis Date: 5/31/2016			SeqNo: 1066711		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25594	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25594	RunNo:	34581					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1066443	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25594	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25594	RunNo:	34581					
Prep Date:	5/31/2016	Analysis Date:	6/1/2016	SeqNo:	1066444	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB	SampType: mblk			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R34520			RunNo: 34520					
Prep Date:		Analysis Date: 5/26/2016			SeqNo: 1064729		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: R34520		RunNo: 34520					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064730		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	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.9	0.50	10.00	0	98.8	90	110			

Sample ID	1605C00-001DMS		SampType: ms		TestCode: EPA Method 300.0: Anions					
Client ID:	EB052416		Batch ID: R34520		RunNo: 34520					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064760		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	100	71.4	120			
Chloride	4.6	0.50	5.000	0	91.6	84	116			
Sulfate	9.3	0.50	10.00	0	93.4	87	116			

Sample ID	1605C00-001DMSD		SampType: msd		TestCode: EPA Method 300.0: Anions					
Client ID:	EB052416		Batch ID: R34520		RunNo: 34520					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064761		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	100	71.4	120	0.378	20	
Chloride	4.6	0.50	5.000	0	92.0	84	116	0.416	20	
Sulfate	9.5	0.50	10.00	0	94.5	87	116	1.22	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25570		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 25570		RunNo: 34590					
Prep Date:	5/31/2016		Analysis Date: 6/1/2016		SeqNo: 1068093		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.4	62.6	124			
Surr: DNOP	4.3		5.000		85.6	70	130			

Sample ID	MB-25570		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 25570		RunNo: 34590					
Prep Date:	5/31/2016		Analysis Date: 6/1/2016		SeqNo: 1068094		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	8.3		10.00		83.3	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25517		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 25517		RunNo: 34489					
Prep Date:	5/26/2016		Analysis Date: 5/27/2016		SeqNo: 1064688		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.95		1.000		95.3	70	141			

Sample ID	LCS-25517		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 25517		RunNo: 34489					
Prep Date:	5/26/2016		Analysis Date: 5/27/2016		SeqNo: 1064689		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	108	71.3	139			
Surr: DNOP	0.48		0.5000		95.8	70	141			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25547		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBS		Batch ID: 25547		RunNo: 34598					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067478		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	1200		1000		118	80	120			

Sample ID	LCS-25547		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSS		Batch ID: 25547		RunNo: 34598					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067479		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	91.1	80	120			
Surr: BFB	1300		1000		127	80	120			S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A34579	RunNo:	34579					
Prep Date:		Analysis Date:	5/31/2016	SeqNo:	1066381	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		96.9	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A34579	RunNo:	34579					
Prep Date:		Analysis Date:	5/31/2016	SeqNo:	1066382	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	94.9	80	120			
Surr: BFB	21		20.00		104	66.4	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605C00-004A DUP	SampType:	DUP	TestCode:	Method 8260B/5035LOW: VOLATILES					
Client ID:	NDD-16 (14-16')	Batch ID:	25524	RunNo:	34514					
Prep Date:	5/26/2016	Analysis Date:	5/26/2016	SeqNo:	1064640	Units:	µg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.57						0	20	
Toluene	0.580	1.57						58.3	20	JR
Ethylbenzene	ND	1.57						0	20	
Methyl tert-butyl ether (MTBE)	0.509	1.57						4.76	20	J
1,2,4-Trimethylbenzene	ND	1.57						0	20	
1,3,5-Trimethylbenzene	ND	1.57						0	20	
1,2-Dichloroethane (EDC)	ND	1.57						0	20	
1,2-Dibromoethane (EDB)	ND	1.57						0	20	
Naphthalene	ND	1.57						0	20	
1-Methylnaphthalene	ND	3.13						0	20	
2-Methylnaphthalene	ND	3.13						0	20	
Acetone	12.0	7.83						34.9	20	R
Bromobenzene	ND	1.57						0	20	
Bromodichloromethane	ND	1.57						0	20	
Bromoform	ND	1.57						0	20	
Bromomethane	ND	2.35						0	20	
2-Butanone	ND	7.83						0	20	
Carbon disulfide	ND	7.83						0	20	
Carbon tetrachloride	ND	1.57						0	20	
Chlorobenzene	ND	1.57						0	20	
Chloroethane	ND	1.57						0	20	
Chloroform	ND	1.57						0	20	
Chloromethane	ND	1.57						0	20	
2-Chlorotoluene	ND	1.57						0	20	
4-Chlorotoluene	ND	1.57						0	20	
cis-1,2-DCE	ND	1.57						0	20	
cis-1,3-Dichloropropene	ND	1.57						0	20	
1,2-Dibromo-3-chloropropane	ND	1.57						0	20	
Dibromochloromethane	ND	1.57						0	20	
Dibromomethane	ND	1.57						0	20	
1,2-Dichlorobenzene	ND	1.57						0	20	
1,3-Dichlorobenzene	ND	1.57						0	20	
1,4-Dichlorobenzene	ND	1.57						0	20	
Dichlorodifluoromethane	ND	1.57						0	20	
1,1-Dichloroethane	ND	1.57						0	20	
1,1-Dichloroethene	ND	1.57						0	20	
1,2-Dichloropropane	ND	1.57						0	20	
1,3-Dichloropropane	ND	1.57						0	20	
2,2-Dichloropropane	ND	1.57						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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605C00-004A DUP		SampType:	DUP		TestCode:	Method 8260B/5035LOW: VOLATILES			
Client ID:	NDD-16 (14-16')		Batch ID:	25524		RunNo:	34514			
Prep Date:	5/26/2016		Analysis Date:	5/26/2016		SeqNo:	1064640		Units: µg/Kg-dry	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.57						0	20	
Hexachlorobutadiene	ND	1.57						0	20	
2-Hexanone	ND	7.83						0	20	
Isopropylbenzene	ND	1.57						0	20	
4-Isopropyltoluene	ND	1.57						0	20	
4-Methyl-2-pentanone	ND	7.83						0	20	
Methylene chloride	ND	2.35						0	20	
n-Butylbenzene	ND	1.57						0	20	
n-Propylbenzene	ND	1.57						0	20	
sec-Butylbenzene	ND	1.57						0	20	
Styrene	ND	1.57						0	20	
tert-Butylbenzene	ND	1.57						0	20	
1,1,1,2-Tetrachloroethane	ND	1.57						0	20	
1,1,2,2-Tetrachloroethane	ND	1.57						0	20	
Tetrachloroethene (PCE)	ND	1.57						0	20	
trans-1,2-DCE	ND	1.57						0	20	
trans-1,3-Dichloropropene	ND	1.57						0	20	
1,2,3-Trichlorobenzene	ND	1.57						0	20	
1,2,4-Trichlorobenzene	ND	1.57						0	20	
1,1,1-Trichloroethane	ND	1.57						0	20	
1,1,2-Trichloroethane	ND	1.57						0	20	
Trichloroethene (TCE)	ND	1.57						0	20	
Trichlorofluoromethane	ND	1.57						0	20	
1,2,3-Trichloropropane	ND	1.57						0	20	
Vinyl chloride	ND	1.57						0	20	
Xylenes, Total	ND	1.57						0	20	
Surr: 1,2-Dichloroethane-d4	7.77		7.833		99.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	7.97		7.833		102	70	130	0	0	
Surr: Dibromofluoromethane	6.94		7.833		88.6	70	130	0	0	
Surr: Toluene-d8	7.55		7.833		96.4	70	130	0	0	

Sample ID	LCS-25556		SampType:	LCS		TestCode:	Method 8260B/5035LOW: VOLATILES			
Client ID:	LCSS		Batch ID:	25556		RunNo:	34551			
Prep Date:	5/27/2016		Analysis Date:	5/27/2016		SeqNo:	1065565		Units: µg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.67	2.00	10.00	0	96.7	70	130			
Toluene	11.1	2.00	10.00	0	111	70	130			
Chlorobenzene	11.2	2.00	10.00	0	112	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25556		SampType: LCS		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	LCSS		Batch ID: 25556		RunNo: 34551					
Prep Date:	5/27/2016		Analysis Date: 5/27/2016		SeqNo: 1065565		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	9.53	2.00	10.00	0	95.3	68	129			
Trichloroethene (TCE)	9.72	2.00	10.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	8.37		10.00		83.7	70	130			
Surr: 4-Bromofluorobenzene	9.89		10.00		98.9	70	130			
Surr: Dibromofluoromethane	8.35		10.00		83.5	70	130			
Surr: Toluene-d8	9.84		10.00		98.4	70	130			

Sample ID	LCSD-25556		SampType: LCS		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	LCSS		Batch ID: 25556		RunNo: 34551					
Prep Date:	5/27/2016		Analysis Date: 5/27/2016		SeqNo: 1065566		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.99	2.00	10.00	0	99.9	70	130	3.26	0	
Toluene	11.3	2.00	10.00	0	113	70	130	2.14	0	
Chlorobenzene	11.4	2.00	10.00	0	114	70	130	1.77	0	
1,1-Dichloroethene	9.88	2.00	10.00	0	98.8	68	129	3.61	0	
Trichloroethene (TCE)	10.1	2.00	10.00	0	101	70	130	3.93	0	
Surr: 1,2-Dichloroethane-d4	8.54		10.00		85.4	70	130	0	0	
Surr: 4-Bromofluorobenzene	10.0		10.00		100	70	130	0	0	
Surr: Dibromofluoromethane	8.25		10.00		82.5	70	130	0	0	
Surr: Toluene-d8	9.73		10.00		97.3	70	130	0	0	

Sample ID	MB-25556		SampType: MBLK		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS		Batch ID: 25556		RunNo: 34551					
Prep Date:	5/27/2016		Analysis Date: 5/27/2016		SeqNo: 1065567		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	2.00								
Toluene	ND	2.00								
Ethylbenzene	ND	2.00								
Methyl tert-butyl ether (MTBE)	ND	2.00								
1,2,4-Trimethylbenzene	ND	2.00								
1,3,5-Trimethylbenzene	ND	2.00								
1,2-Dichloroethane (EDC)	ND	2.00								
1,2-Dibromoethane (EDB)	ND	2.00								
Naphthalene	ND	2.00								
1-Methylnaphthalene	ND	4.00								
2-Methylnaphthalene	ND	4.00								
Acetone	ND	10.0								
Bromobenzene	ND	2.00								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25556	SampType:	MBLK	TestCode:	Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS	Batch ID:	25556	RunNo:	34551					
Prep Date:	5/27/2016	Analysis Date:	5/27/2016	SeqNo:	1065567	Units:	µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	2.00								
Bromoform	ND	2.00								
Bromomethane	ND	3.00								
2-Butanone	ND	10.0								
Carbon disulfide	ND	10.0								
Carbon tetrachloride	ND	2.00								
Chlorobenzene	ND	2.00								
Chloroethane	ND	2.00								
Chloroform	ND	2.00								
Chloromethane	ND	2.00								
2-Chlorotoluene	ND	2.00								
4-Chlorotoluene	ND	2.00								
cis-1,2-DCE	ND	2.00								
cis-1,3-Dichloropropene	ND	2.00								
1,2-Dibromo-3-chloropropane	ND	2.00								
Dibromochloromethane	ND	2.00								
Dibromomethane	ND	2.00								
1,2-Dichlorobenzene	ND	2.00								
1,3-Dichlorobenzene	ND	2.00								
1,4-Dichlorobenzene	ND	2.00								
Dichlorodifluoromethane	ND	2.00								
1,1-Dichloroethane	ND	2.00								
1,1-Dichloroethene	ND	2.00								
1,2-Dichloropropane	ND	2.00								
1,3-Dichloropropane	ND	2.00								
2,2-Dichloropropane	ND	2.00								
1,1-Dichloropropene	ND	2.00								
Hexachlorobutadiene	ND	2.00								
2-Hexanone	ND	10.0								
Isopropylbenzene	ND	2.00								
4-Isopropyltoluene	ND	2.00								
4-Methyl-2-pentanone	ND	10.0								
Methylene chloride	ND	3.00								
n-Butylbenzene	ND	2.00								
n-Propylbenzene	ND	2.00								
sec-Butylbenzene	ND	2.00								
Styrene	ND	2.00								
tert-Butylbenzene	ND	2.00								
1,1,1,2-Tetrachloroethane	ND	2.00								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25556	SampType:	MBLK	TestCode:	Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS	Batch ID:	25556	RunNo:	34551					
Prep Date:	5/27/2016	Analysis Date:	5/27/2016	SeqNo:	1065567	Units:	µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.00								
Tetrachloroethene (PCE)	ND	2.00								
trans-1,2-DCE	ND	2.00								
trans-1,3-Dichloropropene	ND	2.00								
1,2,3-Trichlorobenzene	ND	2.00								
1,2,4-Trichlorobenzene	ND	2.00								
1,1,1-Trichloroethane	ND	2.00								
1,1,2-Trichloroethane	ND	2.00								
Trichloroethene (TCE)	ND	2.00								
Trichlorofluoromethane	ND	2.00								
1,2,3-Trichloropropane	ND	2.00								
Vinyl chloride	ND	2.00								
Xylenes, Total	ND	2.00								
Surr: 1,2-Dichloroethane-d4	8.44		10.00		84.4	70	130			
Surr: 4-Bromofluorobenzene	10.0		10.00		100	70	130			
Surr: Dibromofluoromethane	8.19		10.00		81.9	70	130			
Surr: Toluene-d8	9.74		10.00		97.4	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: A34663			RunNo: 34663					
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1069086		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.8	70	130			
Toluene	19	1.0	20.00	0	97.3	70	130			
Chlorobenzene	20	1.0	20.00	0	98.0	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	88.2	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	98.4	70	130			
Surr: 1,2-Dichloroethane-d4	7.7		10.00		76.7	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.4	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.8	70	130			
Surr: Toluene-d8	8.9		10.00		88.6	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: A34663			RunNo: 34663					
Prep Date:		Analysis Date: 6/2/2016			SeqNo: 1069087		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	0.24	4.0								J
2-Methylnaphthalene	0.31	4.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A34663	RunNo:	34663					
Prep Date:		Analysis Date:	6/2/2016	SeqNo:	1069087	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	0.87	10								J
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	0.14	1.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A34663	RunNo:	34663					
Prep Date:		Analysis Date:	6/2/2016	SeqNo:	1069087	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	7.8		10.00		78.4	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.4	70	130			
Surr: Dibromofluoromethane	8.3		10.00		83.0	70	130			
Surr: Toluene-d8	8.7		10.00		87.3	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25602	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25602	RunNo:	34771					
Prep Date:	6/1/2016	Analysis Date:	6/7/2016	SeqNo:	1072954	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	0.091	0.50								J
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	0.11	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	0.083	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25602		SampType: MBLK			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	PBS		Batch ID: 25602			RunNo: 34771				
Prep Date:	6/1/2016		Analysis Date: 6/7/2016			SeqNo: 1072954	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								
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		61.6	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.7	35.7	103			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		72.4	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		75.2	35.4	111			
Surr: 4-Terphenyl-d14	1.2		1.670		73.1	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25633	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25633	RunNo:	34814					
Prep Date:	6/2/2016	Analysis Date:	6/9/2016	SeqNo:	1074299	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	0.090	0.50								J
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	0.10	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								
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25633		SampType: MBLK			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	PBS		Batch ID: 25633			RunNo: 34814				
Prep Date:	6/2/2016		Analysis Date: 6/9/2016			SeqNo: 1074299	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								
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	2.5		3.330		76.6	28.3	102			
Surr: Phenol-d5	2.8		3.330		84.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.9		3.330		88.5	35.2	108			
Surr: Nitrobenzene-d5	1.4		1.670		84.2	24	118			
Surr: 2-Fluorobiphenyl	1.5		1.670		88.3	35.4	111			
Surr: 4-Terphenyl-d14	0.93		1.670		55.6	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25602		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS		Batch ID: 25602		RunNo: 34814					
Prep Date:	6/1/2016		Analysis Date: 6/9/2016		SeqNo: 1074352		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.20	1.670	0	78.6	45.8	99.8			
4-Chloro-3-methylphenol	2.5	0.50	3.330	0	74.3	51.5	103			
2-Chlorophenol	2.3	0.20	3.330	0	70.5	46.5	105			
1,4-Dichlorobenzene	1.2	0.20	1.670	0	74.0	45.5	103			
2,4-Dinitrotoluene	1.2	0.50	1.670	0	71.4	36	87.2			
N-Nitrosodi-n-propylamine	0.87	0.20	1.670	0	52.0	47.3	104			
4-Nitrophenol	2.6	0.25	3.330	0	77.0	47.3	95.3			
Pentachlorophenol	2.6	0.40	3.330	0	78.5	38.7	89.3			
Phenol	2.4	0.20	3.330	0	72.5	47.8	106			
Pyrene	1.4	0.20	1.670	0	81.5	33.4	105			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	79.6	50.4	115			
Surr: 2-Fluorophenol	1.9		3.330		58.2	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.5	35.7	103			
Surr: 2,4,6-Tribromophenol	2.8		3.330		82.8	35.2	108			
Surr: Nitrobenzene-d5	1.2		1.670		70.7	24	118			
Surr: 2-Fluorobiphenyl	1.3		1.670		80.7	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		65.2	15	91.7			

Sample ID	Ics-25633		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS		Batch ID: 25633		RunNo: 34814					
Prep Date:	6/2/2016		Analysis Date: 6/9/2016		SeqNo: 1074353		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	74.6	45.8	99.8			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.3	51.5	103			
2-Chlorophenol	2.6	0.20	3.330	0	78.1	46.5	105			
1,4-Dichlorobenzene	1.3	0.20	1.670	0	80.6	45.5	103			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	65.5	36	87.2			
N-Nitrosodi-n-propylamine	0.96	0.20	1.670	0	57.7	47.3	104			
4-Nitrophenol	2.3	0.25	3.330	0	68.1	47.3	95.3			
Pentachlorophenol	2.4	0.40	3.330	0	71.6	38.7	89.3			
Phenol	2.5	0.20	3.330	0	75.3	47.8	106			
Pyrene	1.2	0.20	1.670	0	71.8	33.4	105			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	78.1	50.4	115			
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.4		3.330		72.1	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.330		73.9	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.670		67.5	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.7	35.4	111			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25633		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSS		Batch ID: 25633			RunNo: 34814				
Prep Date:	6/2/2016		Analysis Date: 6/9/2016			SeqNo: 1074353	Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.78		1.670		46.4	15	91.7			

Sample ID	1605c00-005ams		SampType: MS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	NDD-16 (22-24')		Batch ID: 25633			RunNo: 34814				
Prep Date:	6/2/2016		Analysis Date: 6/9/2016			SeqNo: 1074370	Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.3	0.24	2.002	0	66.7	39.3	86.4			
4-Chloro-3-methylphenol	2.3	0.60	3.993	0	56.4	37.5	96.4			
2-Chlorophenol	2.5	0.24	3.993	0	61.8	37.4	90.6			
1,4-Dichlorobenzene	1.1	0.24	2.002	0	53.8	31.7	85			
2,4-Dinitrotoluene	1.1	0.60	2.002	0	57.2	26.4	86			
N-Nitrosodi-n-propylamine	1.0	0.24	2.002	0	50.7	43.5	83			
4-Nitrophenol	2.7	0.30	3.993	0	67.0	32.7	98			
Pentachlorophenol	2.5	0.48	3.993	0	61.6	26.6	87.4			
Phenol	2.4	0.24	3.993	0	59.4	40.5	85.3			
Pyrene	1.3	0.24	2.002	0	63.2	23.2	93.9			
1,2,4-Trichlorobenzene	1.3	0.24	2.002	0	63.7	38.7	99			
Surr: 2-Fluorophenol	2.2		3.993		55.7	28.3	102			
Surr: Phenol-d5	2.4		3.993		60.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.7		3.993		67.8	35.2	108			
Surr: Nitrobenzene-d5	1.2		2.002		60.7	24	118			
Surr: 2-Fluorobiphenyl	1.4		2.002		71.4	35.4	111			
Surr: 4-Terphenyl-d14	0.82		2.002		41.0	15	91.7			

Sample ID	1605c00-005amsd		SampType: MSD			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	NDD-16 (22-24')		Batch ID: 25633			RunNo: 34814				
Prep Date:	6/2/2016		Analysis Date: 6/9/2016			SeqNo: 1074372	Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.4	0.24	2.006	0	69.3	39.3	86.4	4.01	30.2	
4-Chloro-3-methylphenol	2.3	0.60	4.001	0	57.3	37.5	96.4	1.70	37.2	
2-Chlorophenol	2.6	0.24	4.001	0	65.0	37.4	90.6	5.17	48	
1,4-Dichlorobenzene	1.2	0.24	2.006	0	60.8	31.7	85	12.5	40.6	
2,4-Dinitrotoluene	1.2	0.60	2.006	0	57.6	26.4	86	0.860	47.7	
N-Nitrosodi-n-propylamine	1.1	0.24	2.006	0	54.8	43.5	83	7.84	52.5	
4-Nitrophenol	2.7	0.30	4.001	0	66.5	32.7	98	0.595	36.6	
Pentachlorophenol	2.5	0.48	4.001	0	61.8	26.6	87.4	0.475	65.5	
Phenol	2.5	0.24	4.001	0	62.8	40.5	85.3	5.74	44	
Pyrene	1.3	0.24	2.006	0	64.4	23.2	93.9	2.14	42.1	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605c00-005amsd	SampType:	MSD	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	NDD-16 (22-24')	Batch ID:	25633	RunNo:	34814					
Prep Date:	6/2/2016	Analysis Date:	6/9/2016	SeqNo:	1074372	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	1.4	0.24	2.006	0	68.9	38.7	99	8.12	31.5	
Surr: 2-Fluorophenol	2.3		4.001		56.3	28.3	102	0	0	
Surr: Phenol-d5	2.4		4.001		61.0	35.7	103	0	0	
Surr: 2,4,6-Tribromophenol	2.6		4.001		66.2	35.2	108	0	0	
Surr: Nitrobenzene-d5	1.3		2.006		62.8	24	118	0	0	
Surr: 2-Fluorobiphenyl	1.4		2.006		68.4	35.4	111	0	0	
Surr: 4-Terphenyl-d14	0.76		2.006		37.8	15	91.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25546		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 25546		RunNo: 34621					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067672		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	5.0								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	5.0								
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	5.0								

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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25546	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25546	RunNo:	34621					
Prep Date:	5/27/2016	Analysis Date:	6/1/2016	SeqNo:	1067672	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	5.0								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	5.0								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	5.0								
3+4-Methylphenol	ND	5.0								
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	5.0								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	5.0								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	5.0								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	97		200.0		48.5	15	123			
Surr: Phenol-d5	76		200.0		37.9	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		80.5	18.4	134			
Surr: Nitrobenzene-d5	65		100.0		65.2	28.8	134			
Surr: 2-Fluorobiphenyl	54		100.0		53.5	35.9	125			
Surr: 4-Terphenyl-d14	56		100.0		55.5	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546		SampType: LCS4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34621					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067673		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	56	94.6			
Acenaphthylene	77	10	100.0	0	77.0	55	95.1			
Aniline	58	10	100.0	0	58.0	26.4	112			
Anthracene	75	10	100.0	0	74.9	53.9	111			
Azobenzene	75	10	100.0	0	74.7	52.4	118			
Benz(a)anthracene	80	10	100.0	0	80.3	27.3	114			
Benzo(a)pyrene	83	10	100.0	0	83.1	53.8	108			
Benzo(b)fluoranthene	89	10	100.0	0	89.4	55.4	107			
Benzo(g,h,i)perylene	84	10	100.0	0	83.8	61.6	97.9			
Benzo(k)fluoranthene	79	10	100.0	0	78.8	50.4	104			
Benzoic acid	63	20	100.0	0	63.2	11.2	78.4			
Benzyl alcohol	64	10	100.0	0	63.8	47.5	107			
Bis(2-chloroethoxy)methane	70	10	100.0	0	70.2	50.1	108			
Bis(2-chloroethyl)ether	64	10	100.0	0	64.5	46.7	113			
Bis(2-chloroisopropyl)ether	61	10	100.0	0	61.4	38.1	116			
Bis(2-ethylhexyl)phthalate	79	10	100.0	0	78.6	42	122			
4-Bromophenyl phenyl ether	78	10	100.0	0	77.5	57.2	110			
Butyl benzyl phthalate	79	10	100.0	0	78.6	56.2	106			
Carbazole	83	10	100.0	0	82.8	52.5	106			
4-Chloro-3-methylphenol	76	10	100.0	0	76.4	48.3	108			
4-Chloroaniline	68	10	100.0	0	67.5	41.7	108			
2-Chloronaphthalene	74	10	100.0	0	73.7	53.5	104			
2-Chlorophenol	64	10	100.0	0	63.7	38.5	107			
4-Chlorophenyl phenyl ether	82	10	100.0	0	81.6	44.5	107			
Chrysene	84	10	100.0	0	83.7	53.5	103			
Di-n-butyl phthalate	77	10	100.0	0	76.7	59.4	109			
Di-n-octyl phthalate	76	10	100.0	0	76.0	56.8	112			
Dibenz(a,h)anthracene	88	10	100.0	0	88.2	57.7	110			
Dibenzofuran	81	10	100.0	0	81.4	49	101			
1,2-Dichlorobenzene	45	5.0	100.0	0	44.8	34.1	101			
1,3-Dichlorobenzene	41	10	100.0	0	40.5	31.5	95.3			
1,4-Dichlorobenzene	41	5.0	100.0	0	40.6	34.5	94.9			
3,3'-Dichlorobenzidine	83	10	100.0	0	83.5	46.3	111			
Diethyl phthalate	86	10	100.0	0	85.9	61.2	95.3			
Dimethyl phthalate	83	10	100.0	0	83.1	62	97.6			
2,4-Dichlorophenol	70	20	100.0	0	70.0	40	109			
2,4-Dimethylphenol	63	10	100.0	0	63.1	43.8	116			
4,6-Dinitro-2-methylphenol	82	20	100.0	0	81.7	22.1	114			
2,4-Dinitrophenol	100	5.0	100.0	0	102	6.98	106			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546	SampType: LCS4			TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC	Batch ID: 25546			RunNo: 34621					
Prep Date:	5/27/2016	Analysis Date: 6/1/2016			SeqNo: 1067673		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	86	5.0	100.0	0	86.4	54.1	99.2			
2,6-Dinitrotoluene	83	10	100.0	0	83.4	58.7	92.7			
Fluoranthene	88	10	100.0	0	87.8	56.2	101			
Fluorene	86	10	100.0	0	85.9	57.2	93.1			
Hexachlorobenzene	82	5.0	100.0	0	82.0	56.4	106			
Hexachlorobutadiene	46	10	100.0	0	46.2	37.3	102			
Hexachlorocyclopentadiene	54	10	100.0	0	54.2	31.3	102			
Hexachloroethane	38	5.0	100.0	0	37.6	30.9	94.3			
Indeno(1,2,3-cd)pyrene	86	10	100.0	0	86.0	63.4	95.4			
Isophorone	67	10	100.0	0	67.2	54.7	106			
1-Methylnaphthalene	69	10	100.0	0	69.1	45.2	109			
2-Methylnaphthalene	63	10	100.0	0	62.7	43.8	112			
2-Methylphenol	66	5.0	100.0	0	66.1	45.3	107			
3+4-Methylphenol	58	5.0	100.0	0	57.7	38.6	105			
N-Nitrosodi-n-propylamine	62	10	100.0	0	62.4	44.4	109			
N-Nitrosodimethylamine	55	10	100.0	0	54.9	46.6	101			
N-Nitrosodiphenylamine	73	10	100.0	0	72.6	54.9	106			
Naphthalene	59	10	100.0	0	58.6	45.6	105			
2-Nitroaniline	82	10	100.0	0	82.2	60	93.8			
3-Nitroaniline	81	10	100.0	0	81.4	56.7	93.1			
4-Nitroaniline	86	10	100.0	0	86.4	49.6	99.1			
Nitrobenzene	65	5.0	100.0	0	64.9	48.6	107			
2-Nitrophenol	70	10	100.0	0	70.5	36	113			
4-Nitrophenol	58	10	100.0	0	58.4	23.6	72.2			
Pentachlorophenol	85	5.0	100.0	0	85.2	17.7	115			
Phenanthrene	78	10	100.0	0	78.3	57	105			
Phenol	46	10	100.0	0	46.5	22.9	81.8			
Pyrene	85	10	100.0	0	84.9	52.2	103			
Pyridine	26	5.0	100.0	0	26.3	15.2	89.7			
1,2,4-Trichlorobenzene	51	10	100.0	0	51.5	43.2	103			
2,4,5-Trichlorophenol	79	10	100.0	0	79.0	33	109			
2,4,6-Trichlorophenol	86	10	100.0	0	85.7	27.4	110			
Surr: 2-Fluorophenol	71		200.0		35.7	15	123			
Surr: Phenol-d5	55		200.0		27.6	4.13	124			
Surr: 2,4,6-Tribromophenol	130		200.0		63.4	18.4	134			
Surr: Nitrobenzene-d5	50		100.0		50.2	28.8	134			
Surr: 2-Fluorobiphenyl	51		100.0		50.7	35.9	125			
Surr: 4-Terphenyl-d14	47		100.0		47.0	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25546		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25546		RunNo: 34621					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1067674		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	78.8	35	113			
4-Chloro-3-methylphenol	76	10	100.0	0	76.4	40.7	114			
2-Chlorophenol	64	10	100.0	0	63.7	37.6	113			
1,4-Dichlorobenzene	41	10	100.0	0	40.6	37.7	106			
2,4-Dinitrotoluene	86	10	100.0	0	86.4	37	91			
N-Nitrosodi-n-propylamine	62	10	100.0	0	62.4	45.4	105			
4-Nitrophenol	58	10	100.0	0	58.4	33.4	104			
Pentachlorophenol	85	20	100.0	0	85.2	29.5	94.9			
Phenol	46	10	100.0	0	46.5	30.6	119			
Pyrene	85	10	100.0	0	84.9	26.2	120			
1,2,4-Trichlorobenzene	51	10	100.0	0	51.5	39.9	125			
Surr: 2-Fluorophenol	71		200.0		35.7	15	123			
Surr: Phenol-d5	55		200.0		27.6	4.13	124			
Surr: 2,4,6-Tribromophenol	130		200.0		63.4	18.4	134			
Surr: Nitrobenzene-d5	50		100.0		50.2	28.8	134			
Surr: 2-Fluorobiphenyl	51		100.0		50.7	35.9	125			
Surr: 4-Terphenyl-d14	47		100.0		47.0	15	146			

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:			Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	71	0.020	100.0	0	71.4	56	94.6	9.80	20	
Acenaphthylene	74	0.020	100.0	0	74.3	55	95.1	3.59	20	
Aniline	67	0.020	100.0	0	66.9	26.4	112	14.2	20	
Anthracene	77	0.020	100.0	0	77.2	53.9	111	3.02	20	
Azobenzene	79	0.020	100.0	0	79.4	52.4	118	6.00	20	
Benz(a)anthracene	84	0.020	100.0	0	84.4	27.3	114	4.98	20	
Benzo(a)pyrene	85	0.020	100.0	0	84.6	53.8	108	1.81	20	
Benzo(b)fluoranthene	84	0.020	100.0	0	83.7	55.4	107	6.56	20	
Benzo(g,h,i)perylene	83	0.020	100.0	0	83.3	61.6	97.9	0.575	20	
Benzo(k)fluoranthene	79	0.020	100.0	0	78.9	50.4	104	0.203	20	
Benzoic acid	58	0.040	100.0	0	58.5	11.2	78.4	7.76	20	
Benzyl alcohol	75	0.020	100.0	0	74.7	47.5	107	15.7	20	
Bis(2-chloroethoxy)methane	68	0.020	100.0	0	68.0	50.1	108	3.21	20	
Bis(2-chloroethyl)ether	69	0.020	100.0	0	68.9	46.7	113	6.63	20	
Bis(2-chloroisopropyl)ether	67	0.020	100.0	0	67.0	38.1	116	8.75	20	
Bis(2-ethylhexyl)phthalate	80	0.020	100.0	0	79.8	42	122	1.59	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:			Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	77	0.020	100.0	0	76.8	57.2	110	0.933	20	
Butyl benzyl phthalate	85	0.020	100.0	0	85.0	56.2	106	7.82	20	
Carbazole	80	0.020	100.0	0	79.6	52.5	106	3.87	20	
4-Chloro-3-methylphenol	71	0.020	100.0	0	70.6	48.3	108	7.84	20	
4-Chloroaniline	69	0.020	100.0	0	68.9	41.7	108	2.02	20	
2-Chloronaphthalene	71	0.020	100.0	0	70.6	53.5	104	4.41	20	
2-Chlorophenol	73	0.020	100.0	0	73.2	38.5	107	13.9	20	
4-Chlorophenyl phenyl ether	72	0.020	100.0	0	71.7	44.5	107	13.0	20	
Chrysene	80	0.020	100.0	0	79.5	53.5	103	5.19	20	
Di-n-butyl phthalate	78	0.020	100.0	0	78.3	59.4	109	2.04	20	
Di-n-octyl phthalate	84	0.020	100.0	0	84.0	56.8	112	10.0	20	
Dibenz(a,h)anthracene	83	0.020	100.0	0	82.6	57.7	110	6.60	20	
Dibenzofuran	71	0.020	100.0	0	70.6	49	101	14.1	20	
1,2-Dichlorobenzene	48	0.020	100.0	0	48.4	34.1	101	7.69	20	
1,3-Dichlorobenzene	44	0.020	100.0	0	43.7	31.5	95.3	7.55	20	
1,4-Dichlorobenzene	46	0.020	100.0	0	45.7	34.5	94.9	11.9	20	
3,3'-Dichlorobenzidine	86	0.020	100.0	0	86.3	46.3	111	3.39	20	
Diethyl phthalate	75	0.020	100.0	0	74.8	61.2	95.3	13.8	20	
Dimethyl phthalate	78	0.020	100.0	0	78.2	62	97.6	6.00	20	
2,4-Dichlorophenol	73	0.040	100.0	0	73.0	40	109	4.08	20	
2,4-Dimethylphenol	66	0.020	100.0	0	66.3	43.8	116	4.94	20	
4,6-Dinitro-2-methylphenol	89	0.040	100.0	0	88.6	22.1	114	8.11	20	
2,4-Dinitrophenol	88	0.040	100.0	0	88.3	6.98	106	13.9	20	
2,4-Dinitrotoluene	73	0.020	100.0	0	73.5	54.1	99.2	16.2	20	
2,6-Dinitrotoluene	74	0.020	100.0	0	74.0	58.7	92.7	11.9	20	
Fluoranthene	78	0.020	100.0	0	78.1	56.2	101	11.7	20	
Fluorene	75	0.020	100.0	0	74.8	57.2	93.1	13.8	20	
Hexachlorobenzene	85	0.020	100.0	0	84.9	56.4	106	3.47	20	
Hexachlorobutadiene	47	0.020	100.0	0	46.6	37.3	102	0.862	20	
Hexachlorocyclopentadiene	58	0.020	100.0	0	57.6	31.3	102	5.98	20	
Hexachloroethane	41	0.020	100.0	0	40.8	30.9	94.3	8.21	20	
Indeno(1,2,3-cd)pyrene	85	0.020	100.0	0	85.0	63.4	95.4	1.15	20	
Isophorone	70	0.020	100.0	0	70.1	54.7	106	4.17	20	
1-Methylnaphthalene	64	0.020	100.0	0	64.5	45.2	109	6.89	20	
2-Methylnaphthalene	66	0.020	100.0	0	65.8	43.8	112	4.95	20	
2-Methylphenol	69	0.020	100.0	0	68.8	45.3	107	3.94	20	
3+4-Methylphenol	62	0.020	100.0	0	61.9	38.6	105	6.96	20	
N-Nitrosodi-n-propylamine	68	0.020	100.0	0	67.8	44.4	109	8.30	20	
N-Nitrosodimethylamine	59	0.020	100.0	0	59.0	46.6	101	7.20	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Icsr-25546		SampType: LCSD4		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	BatchQC		Batch ID: 25546		RunNo: 34659					
Prep Date:			Analysis Date: 6/2/2016		SeqNo: 1068974		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	79	0.020	100.0	0	78.6	54.9	106	7.96	20	
Naphthalene	61	0.020	100.0	0	61.5	45.6	105	4.80	20	
2-Nitroaniline	73	0.020	100.0	0	73.4	60	93.8	11.4	20	
3-Nitroaniline	73	0.020	100.0	0	72.6	56.7	93.1	11.4	20	
4-Nitroaniline	74	0.020	100.0	0	73.9	49.6	99.1	15.6	20	
Nitrobenzene	64	0.020	100.0	0	64.2	48.6	107	1.05	20	
2-Nitrophenol	70	0.020	100.0	0	69.7	36	113	1.06	20	
4-Nitrophenol	53	0.020	100.0	0	53.1	23.6	72.2	9.50	20	
Pentachlorophenol	88	0.040	100.0	0	87.9	17.7	115	3.14	20	
Phenanthrene	81	0.020	100.0	0	81.2	57	105	3.59	20	
Phenol	54	0.020	100.0	0	54.3	22.9	81.8	15.4	20	
Pyrene	81	0.020	100.0	0	81.3	52.2	103	4.29	20	
Pyridine	29	0.020	100.0	0	29.1	15.2	89.7	10.3	20	
1,2,4-Trichlorobenzene	56	0.020	100.0	0	56.2	43.2	103	8.84	20	
2,4,5-Trichlorophenol	76	0.020	100.0	0	76.3	33	109	3.48	20	
2,4,6-Trichlorophenol	75	0.020	100.0	0	74.6	27.4	110	13.9	20	
Surr: 2-Fluorophenol	76		200.0		37.8	15	123	0		
Surr: Phenol-d5	64		200.0		31.8	4.13	124	0		
Surr: 2,4,6-Tribromophenol	130		200.0		65.3	18.4	134	0		
Surr: Nitrobenzene-d5	52		100.0		51.6	28.8	134	0		
Surr: 2-Fluorobiphenyl	51		100.0		51.3	35.9	125	0		
Surr: 4-Terphenyl-d14	49		100.0		48.7	15	146	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25606		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 25606		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068366		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	0.0012	0.033								J

Sample ID	LCS-25606		SampType: LCS		TestCode: EPA Method 7471: Mercury					
Client ID:	LCSS		Batch ID: 25606		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068367		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	101	80	120			

Sample ID	1605C00-002BMS		SampType: MS		TestCode: EPA Method 7471: Mercury					
Client ID:	NDD-16 (0-0.5')		Batch ID: 25606		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068369		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.21	0.044	0.2238	0.01082	90.3	75	125			

Sample ID	1605C00-002BMSD		SampType: MSD		TestCode: EPA Method 7471: Mercury					
Client ID:	NDD-16 (0-0.5')		Batch ID: 25606		RunNo: 34636					
Prep Date:	6/1/2016		Analysis Date: 6/2/2016		SeqNo: 1068370		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.22	0.044	0.2198	0.01082	96.9	75	125	4.90	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25604		SampType:	MBLK		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	PBS		Batch ID:	25604		RunNo:	34648			
Prep Date:	6/1/2016		Analysis Date:	6/2/2016		SeqNo:	1068541	Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Beryllium	ND	0.15								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.1	2.5								J
Lead	ND	0.25								
Manganese	0.049	0.10								J
Nickel	ND	0.50								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID	LCS-25604		SampType:	LCS		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	LCSS		Batch ID:	25604		RunNo:	34648			
Prep Date:	6/1/2016		Analysis Date:	6/2/2016		SeqNo:	1068542	Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	105	80	120			
Barium	26	0.10	25.00	0	103	80	120			
Beryllium	27	0.15	25.00	0	106	80	120			
Cadmium	26	0.10	25.00	0	105	80	120			
Chromium	26	0.30	25.00	0	102	80	120			
Cobalt	25	0.30	25.00	0	101	80	120			
Iron	26	2.5	25.00	0	105	80	120			
Lead	25	0.25	25.00	0	100	80	120			
Manganese	26	0.10	25.00	0	103	80	120			
Nickel	25	0.50	25.00	0	101	80	120			
Silver	5.2	0.25	5.000	0	104	80	120			
Vanadium	27	2.5	25.00	0	107	80	120			
Zinc	26	2.5	25.00	0	103	80	120			

Sample ID	MB-25604		SampType:	MBLK		TestCode:	EPA Method 6010B: Soil Metals			
Client ID:	PBS		Batch ID:	25604		RunNo:	34704			
Prep Date:	6/1/2016		Analysis Date:	6/6/2016		SeqNo:	1070596	Units:	mg/Kg	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	2.5								
Selenium	ND	2.5								

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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C00

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25604		SampType: LCS			TestCode: EPA Method 6010B: Soil Metals				
Client ID:	LCSS		Batch ID: 25604			RunNo: 34704				
Prep Date:	6/1/2016		Analysis Date: 6/6/2016			SeqNo: 1070597		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	25	2.5	25.00	0	101	80	120			
Selenium	25	2.5	25.00	0	99.5	80	120			

Sample ID	1605C00-002BMS	SampType: MS			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	NDD-16 (0-0.5')	Batch ID: 25604			RunNo: 34704					
Prep Date:	6/1/2016	Analysis Date: 6/6/2016			SeqNo: 1070630		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	29	3.4	34.12	1.468	81.3	75	125			
Beryllium	30	0.20	34.12	1.154	84.4	75	125			
Cadmium	28	0.14	34.12	0	83.1	75	125			
Chromium	43	0.41	34.12	13.11	87.8	75	125			
Cobalt	32	0.41	34.12	6.409	74.4	75	125			S
Lead	30	0.34	34.12	6.423	69.4	75	125			S
Nickel	38	0.68	34.12	11.56	76.4	75	125			
Selenium	25	3.4	34.12	0	71.9	75	125			S
Silver	5.7	0.34	6.825	0	84.1	75	125			
Vanadium	52	3.4	34.12	20.85	92.4	75	125			
Zinc	48	3.4	34.12	20.65	80.8	75	125			

Sample ID	1605C00-002BMSD		SampType: MSD		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	NDD-16 (0-0.5')		Batch ID: 25604		RunNo: 34704					
Prep Date:	6/1/2016		Analysis Date: 6/6/2016		SeqNo: 1070631		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	29	3.4	34.06	1.468	80.0	75	125	1.73	20	
Beryllium	30	0.20	34.06	1.154	83.4	75	125	1.34	20	
Cadmium	28	0.14	34.06	0	81.9	75	125	1.66	20	
Chromium	43	0.41	34.06	13.11	88.0	75	125	0.0676	20	
Cobalt	31	0.41	34.06	6.409	73.4	75	125	1.25	20	S
Lead	30	0.34	34.06	6.423	69.8	75	125	0.328	20	S
Nickel	37	0.68	34.06	11.56	75.4	75	125	0.999	20	
Selenium	25	3.4	34.06	0	73.1	75	125	1.43	20	S
Silver	5.7	0.34	6.813	0	83.6	75	125	0.706	20	
Vanadium	53	3.4	34.06	20.85	94.2	75	125	1.00	20	
Zinc	49	3.4	34.06	20.65	82.1	75	125	0.793	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: **Western Refining Gallup**

Work Order Number: **1605C00**

RcptNo: 1

Received by/date:

AF

05/25/16

Logged By: **Ashley Gallegos**

5/25/2016 3:20:00 PM

Ag

Completed By: **Ashley Gallegos**

5/26/2016 9:11:35 AM

Ag

Reviewed By:

IO

05/26/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐
- # of preserved bottles checked for pH: *2 or 2*
Adjusted? *No*
Checked by: *JA*

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES
TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

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
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

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR SOIL SAMPLES

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
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



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

July 08, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: North Drainage Ditch

OrderNo.: 1605C77

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 1 sample(s) on 5/26/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C77

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54 (14-16')

Project: North Drainage Ditch

Collection Date: 5/25/2016 1:20:00 PM

Lab ID: 1605C77-001

Matrix: SOIL

Received Date: 5/26/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.5	9.7		mg/Kg-dr	1	6/1/2016 5:18:08 PM	25570
Motor Oil Range Organics (MRO)	ND	48	48		mg/Kg-dr	1	6/1/2016 5:18:08 PM	25570
Surr: DNOP	90.8	0	70-130		%Rec	1	6/1/2016 5:18:08 PM	25570
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	1.5	1.0	1.0		wt%	1	5/31/2016	R34586
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.086	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Acenaphthylene	ND	0.082	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Aniline	ND	0.095	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Anthracene	ND	0.067	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Azobenzene	ND	0.12	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benz(a)anthracene	ND	0.087	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzo(a)pyrene	ND	0.076	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzo(b)fluoranthene	ND	0.091	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzo(g,h,i)perylene	ND	0.089	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzo(k)fluoranthene	ND	0.089	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzoic acid	ND	0.083	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Benzyl alcohol	ND	0.079	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Bis(2-chloroethoxy)methane	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Bis(2-chloroethyl)ether	ND	0.074	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Bis(2-chloroisopropyl)ether	ND	0.090	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Bis(2-ethylhexyl)phthalate	0.10	0.082	0.50	J	mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Bromophenyl phenyl ether	ND	0.096	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Butyl benzyl phthalate	ND	0.089	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Carbazole	ND	0.068	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Chloro-3-methylphenol	ND	0.12	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Chloroaniline	ND	0.11	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Chloronaphthalene	ND	0.079	0.25		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Chlorophenol	ND	0.079	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Chlorophenyl phenyl ether	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Chrysene	ND	0.086	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Di-n-butyl phthalate	ND	0.075	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Di-n-octyl phthalate	ND	0.086	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Dibenz(a,h)anthracene	ND	0.081	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Dibenzofuran	ND	0.10	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
1,2-Dichlorobenzene	ND	0.077	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
1,3-Dichlorobenzene	ND	0.078	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
1,4-Dichlorobenzene	ND	0.085	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: OW-54 (14-16')

Project: North Drainage Ditch

Collection Date: 5/25/2016 1:20:00 PM

Lab ID: 1605C77-001

Matrix: SOIL

Received Date: 5/26/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
3,3'-Dichlorobenzidine	ND	0.074	0.25		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Diethyl phthalate	ND	0.10	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Dimethyl phthalate	ND	0.098	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4-Dichlorophenol	ND	0.094	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4-Dimethylphenol	ND	0.11	0.30		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4,6-Dinitro-2-methylphenol	ND	0.061	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4-Dinitrophenol	ND	0.067	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4-Dinitrotoluene	ND	0.090	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,6-Dinitrotoluene	ND	0.11	0.50		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Fluoranthene	ND	0.058	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Fluorene	ND	0.092	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Hexachlorobenzene	ND	0.079	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Hexachlorobutadiene	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Hexachlorocyclopentadiene	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Hexachloroethane	ND	0.086	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Indeno(1,2,3-cd)pyrene	ND	0.079	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
1-Methylnaphthalene	ND	0.10	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Methylnaphthalene	ND	0.12	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Methylphenol	ND	0.084	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
3+4-Methylphenol	ND	0.073	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
N-Nitrosodi-n-propylamine	ND	0.097	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
N-Nitrosodiphenylamine	ND	0.098	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Naphthalene	ND	0.097	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Nitroaniline	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
3-Nitroaniline	ND	0.089	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Nitroaniline	ND	0.071	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Nitrobenzene	ND	0.10	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2-Nitrophenol	ND	0.10	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
4-Nitrophenol	ND	0.077	0.25		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Pentachlorophenol	ND	0.065	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Phenanthrene	ND	0.068	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Phenol	ND	0.076	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Pyrene	ND	0.076	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Pyridine	ND	0.080	0.40		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
1,2,4-Trichlorobenzene	ND	0.11	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4,5-Trichlorophenol	ND	0.10	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
2,4,6-Trichlorophenol	ND	0.083	0.20		mg/Kg-dr	1	6/9/2016 1:06:08 PM	25633
Surr: 2-Fluorophenol	64.1	0	28.3-102		%Rec	1	6/9/2016 1:06:08 PM	25633
Surr: Phenol-d5	63.9	0	35.7-103		%Rec	1	6/9/2016 1:06:08 PM	25633

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C77

Date Reported: 7/8/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54 (14-16')

Project: North Drainage Ditch

Collection Date: 5/25/2016 1:20:00 PM

Lab ID: 1605C77-001

Matrix: SOIL

Received Date: 5/26/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Surr: 2,4,6-Tribromophenol	60.2	0	35.2-108		%Rec	1	6/9/2016 1:06:08 PM	25633
Surr: Nitrobenzene-d5	58.6		24-118		%Rec	1	6/9/2016 1:06:08 PM	25633
Surr: 2-Fluorobiphenyl	60.6		35.4-111		%Rec	1	6/9/2016 1:06:08 PM	25633
Surr: 4-Terphenyl-d14	46.0		15-91.7		%Rec	1	6/9/2016 1:06:08 PM	25633
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	1.4	0.0094	0.012		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Toluene	0.67	0.0014	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Ethylbenzene	0.50	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Methyl tert-butyl ether (MTBE)	0.070	0.0074	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2,4-Trimethylbenzene	0.75	0.0017	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,3,5-Trimethylbenzene	0.25	0.0017	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2-Dichloroethane (EDC)	ND	0.0061	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2-Dibromoethane (EDB)	ND	0.0017	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Naphthalene	0.33	0.0037	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1-Methylnaphthalene	0.14	0.0052	0.094		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
2-Methylnaphthalene	0.22	0.0050	0.094		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Acetone	ND	0.030	0.35		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Bromobenzene	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Bromodichloromethane	ND	0.0014	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Bromoform	ND	0.0028	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Bromomethane	ND	0.0086	0.070		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
2-Butanone	ND	0.013	0.23		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Carbon disulfide	ND	0.0077	0.23		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Carbon tetrachloride	ND	0.0015	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Chlorobenzene	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Chloroethane	ND	0.0047	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Chloroform	ND	0.0018	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Chloromethane	ND	0.0021	0.070		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
2-Chlorotoluene	ND	0.0017	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
4-Chlorotoluene	ND	0.0021	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
cis-1,2-DCE	ND	0.0014	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
cis-1,3-Dichloropropene	ND	0.0022	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2-Dibromo-3-chloropropane	ND	0.0072	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Dibromochloromethane	ND	0.0021	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Dibromomethane	ND	0.0020	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2-Dichlorobenzene	ND	0.0020	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,3-Dichlorobenzene	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,4-Dichlorobenzene	ND	0.0029	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Dichlorodifluoromethane	ND	0.0072	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605C77

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: OW-54 (14-16')

Project: North Drainage Ditch

Collection Date: 5/25/2016 1:20:00 PM

Lab ID: 1605C77-001

Matrix: SOIL

Received Date: 5/26/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,1-Dichloroethane	ND	0.0013	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1-Dichloroethene	ND	0.0077	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2-Dichloropropane	ND	0.0020	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,3-Dichloropropane	ND	0.0027	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
2,2-Dichloropropane	ND	0.0013	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1-Dichloropropene	ND	0.0019	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Hexachlorobutadiene	ND	0.0029	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
2-Hexanone	ND	0.013	0.23		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Isopropylbenzene	0.017	0.0020	0.023	J	mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
4-Isopropyltoluene	0.0034	0.0021	0.023	J	mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
4-Methyl-2-pentanone	ND	0.0068	0.23		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Methylene chloride	ND	0.0067	0.070		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
n-Butylbenzene	0.025	0.0021	0.070	J	mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
n-Propylbenzene	0.11	0.0018	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
sec-Butylbenzene	0.0057	0.0032	0.023	J	mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Styrene	ND	0.0021	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
tert-Butylbenzene	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1,1,2-Tetrachloroethane	ND	0.0022	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1,2,2-Tetrachloroethane	ND	0.0038	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Tetrachloroethene (PCE)	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
trans-1,2-DCE	ND	0.0065	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
trans-1,3-Dichloropropene	ND	0.0034	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2,3-Trichlorobenzene	ND	0.0035	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2,4-Trichlorobenzene	ND	0.0025	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1,1-Trichloroethane	ND	0.0014	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,1,2-Trichloroethane	ND	0.0028	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Trichloroethene (TCE)	ND	0.0025	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Trichlorofluoromethane	ND	0.0017	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
1,2,3-Trichloropropane	ND	0.0040	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Vinyl chloride	ND	0.0019	0.023		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Xylenes, Total	1.1	0.0044	0.047		mg/Kg-dr	1	6/1/2016 6:24:22 AM	25547
Surr: Dibromofluoromethane	90.5		70-130		%Rec	1	6/1/2016 6:24:22 AM	25547
Surr: 1,2-Dichloroethane-d4	81.5		70-130		%Rec	1	6/1/2016 6:24:22 AM	25547
Surr: Toluene-d8	101		70-130		%Rec	1	6/1/2016 6:24:22 AM	25547
Surr: 4-Bromofluorobenzene	102		70-130		%Rec	1	6/1/2016 6:24:22 AM	25547
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	21	0.35	2.3		mg/Kg-dr	1	6/1/2016 6:24:22 AM	E34585
Surr: BFB	99.9	0	70-130		%Rec	1	6/1/2016 6:24:22 AM	E34585

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25570		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 25570		RunNo: 34590					
Prep Date:	5/31/2016		Analysis Date: 6/1/2016		SeqNo: 1068093		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	10	50.00	0	77.4	62.6	124			
Surr: DNOP	4.3		5.000		85.6	70	130			

Sample ID	MB-25570	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 25570			RunNo: 34590					
Prep Date:	5/31/2016	Analysis Date: 6/1/2016			SeqNo: 1068094		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	8.3		10.00		83.3	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25547	SampType:	MBLK	TestCode:	EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID:	25547	RunNo:	34585					
Prep Date:	5/27/2016	Analysis Date:	6/1/2016	SeqNo:	1066648	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	0.015	0.050								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25547		SampType: MBLK			TestCode: EPA Method 8260B: Volatiles				
Client ID:	PBS		Batch ID: 25547			RunNo: 34585				
Prep Date:	5/27/2016		Analysis Date: 6/1/2016			SeqNo: 1066648		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)	0.016	0.050								J
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.49		0.5000		97.5	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.1	70	130			
Surr: Toluene-d8	0.51		0.5000		101	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			

Sample ID	lcs-25547		SampType: LCS			TestCode: EPA Method 8260B: Volatiles				
Client ID:	LCSS		Batch ID: 25547			RunNo: 34585				
Prep Date:	5/27/2016		Analysis Date: 6/1/2016			SeqNo: 1066649		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.90	0.025	1.000	0	90.3	70	130			
Toluene	0.98	0.050	1.000	0	98.1	70	130			
Chlorobenzene	0.91	0.050	1.000	0	90.9	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
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25547		SampType: LCS		TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS		Batch ID: 25547		RunNo: 34585					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1066649		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	0.88	0.050	1.000	0	87.9	70	130			
Trichloroethene (TCE)	0.90	0.050	1.000	0	89.7	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.4	70	130			
Surr: 1,2-Dichloroethane-d4	0.43		0.5000		86.3	70	130			
Surr: Toluene-d8	0.50		0.5000		99.2	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25633	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25633	RunNo:	34814					
Prep Date:	6/2/2016	Analysis Date:	6/9/2016	SeqNo:	1074299	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	0.090	0.50								J
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	0.10	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								
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25633	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25633	RunNo:	34814					
Prep Date:	6/2/2016	Analysis Date:	6/9/2016	SeqNo:	1074299	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								
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	2.5		3.330		76.6	28.3	102			
Surr: Phenol-d5	2.8		3.330		84.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.9		3.330		88.5	35.2	108			
Surr: Nitrobenzene-d5	1.4		1.670		84.2	24	118			
Surr: 2-Fluorobiphenyl	1.5		1.670		88.3	35.4	111			
Surr: 4-Terphenyl-d14	0.93		1.670		55.6	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25633		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS		Batch ID: 25633		RunNo: 34814					
Prep Date:	6/2/2016		Analysis Date: 6/9/2016		SeqNo: 1074353		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	74.6	45.8	99.8			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.3	51.5	103			
2-Chlorophenol	2.6	0.20	3.330	0	78.1	46.5	105			
1,4-Dichlorobenzene	1.3	0.20	1.670	0	80.6	45.5	103			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	65.5	36	87.2			
N-Nitrosodi-n-propylamine	0.96	0.20	1.670	0	57.7	47.3	104			
4-Nitrophenol	2.3	0.25	3.330	0	68.1	47.3	95.3			
Pentachlorophenol	2.4	0.40	3.330	0	71.6	38.7	89.3			
Phenol	2.5	0.20	3.330	0	75.3	47.8	106			
Pyrene	1.2	0.20	1.670	0	71.8	33.4	105			
1,2,4-Trichlorobenzene	1.3	0.20	1.670	0	78.1	50.4	115			
Surr: 2-Fluorophenol	2.2		3.330		65.3	28.3	102			
Surr: Phenol-d5	2.4		3.330		72.1	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.330		73.9	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.670		67.5	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		71.7	35.4	111			
Surr: 4-Terphenyl-d14	0.78		1.670		46.4	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C77

08-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25547		SampType: MBLK		TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS		Batch ID: E34585		RunNo: 34585					
Prep Date:	5/27/2016		Analysis Date: 6/1/2016		SeqNo: 1066719		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	490		500.0		97.3	70	130			

Sample ID	2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS	Batch ID: E34585			RunNo: 34585					
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1066720		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	62.9	123			
Surr: BFB	490		500.0		97.4	70	130			

Sample ID	1605c77-001ams		SampType: MS		TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	OW-54 (14-16')		Batch ID: E34585		RunNo: 34585					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1066722		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	2.3	11.70	21.10	92.8	52.3	132			
Surr: BFB	230		234.0		98.7	70	130			

Sample ID	1605c77-001amsd		SampType: MSD		TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	OW-54 (14-16')		Batch ID: E34585		RunNo: 34585					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1066723		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	2.3	11.70	21.10	81.8	52.3	132	4.12	20	
Surr: BFB	230		234.0		98.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

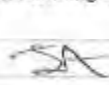
Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1605C77

RcptNo: 1

Received by/date:

 05/26/16

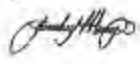
Logged By: Lindsay Mangin

5/26/2016 4:30:00 PM



Completed By: Lindsay Mangin

5/27/2016 1:09:43 PM



Reviewed By:

 05/27/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Downer

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: _____
(<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? _____
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by _____

Special Handling (if applicable)

16. 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:

17. Additional remarks: per TB use collection time on sample ID labels

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

 05/27/16



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

July 08, 2016

Ed Riege

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: North Drainage Ditch

OrderNo.: 1605C89

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 15 sample(s) on 5/27/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	4.3	0.69	1.0		mg/L	1	6/2/2016 3:21:15 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 3:21:15 AM	25599
Surr: DNOP	102	0	70-141		%Rec	1	6/2/2016 3:21:15 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	27	2.5	5.0		mg/L	100	6/1/2016 2:37:22 PM	A34615
Surr: BFB	96.4	0	66.4-120		%Rec	100	6/1/2016 2:37:22 PM	A34615
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	1.5	0.023	0.10		mg/L	1	5/27/2016 5:53:10 PM	R34562
Chloride	560	1.4	25		mg/L	50	6/2/2016 3:49:11 AM	A34634
Sulfate	1.1	0.064	0.50		mg/L	1	5/27/2016 5:53:10 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	5.6	0.013	0.020	*	mg/L	10	6/8/2016 12:57:08 PM	B34764
Beryllium	0.00044	0.00031	0.0020	J	mg/L	1	6/3/2016 2:59:35 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 2:59:35 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 2:59:35 PM	B34669
Cobalt	0.013	0.00074	0.0060		mg/L	1	6/3/2016 2:59:35 PM	B34669
Iron	0.26	0.0091	0.020		mg/L	1	6/3/2016 2:59:35 PM	B34669
Manganese	3.0	0.0032	0.020	*	mg/L	10	6/8/2016 12:57:08 PM	B34764
Nickel	0.060	0.0024	0.010		mg/L	1	6/3/2016 2:59:35 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 2:59:35 PM	B34669
Vanadium	0.0042	0.0013	0.050	J	mg/L	1	6/3/2016 2:59:35 PM	B34669
Zinc	0.0069	0.0028	0.010	J	mg/L	1	6/3/2016 2:59:35 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	5.4	0.013	0.020	*	mg/L	10	6/3/2016 3:43:31 PM	25653
Beryllium	0.0011	0.00031	0.0020	J	mg/L	1	6/3/2016 10:53:15 AM	25653
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 10:53:15 AM	25653
Chromium	0.0065	0.0022	0.0060		mg/L	1	6/3/2016 10:53:15 AM	25653
Cobalt	0.015	0.00085	0.0060		mg/L	1	6/3/2016 10:53:15 AM	25653
Iron	6.3	0.091	0.20	*	mg/L	10	6/3/2016 3:43:31 PM	25653
Manganese	3.2	0.0076	0.010	*	mg/L	5	6/3/2016 11:04:34 AM	25653
Nickel	0.065	0.0024	0.010		mg/L	1	6/3/2016 10:53:15 AM	25653
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 10:53:15 AM	25653
Vanadium	0.018	0.0015	0.050	J	mg/L	1	6/3/2016 10:53:15 AM	25653
Zinc	0.024	0.0039	0.010		mg/L	1	6/3/2016 10:53:15 AM	25653
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	0.00077	0.00047	0.0010	J	mg/L	1	6/8/2016 5:09:08 PM	A34787
Arsenic	0.0083	0.00014	0.0010		mg/L	1	6/8/2016 5:09:08 PM	A34787

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00079	0.00017	0.00050		mg/L	1	6/8/2016 5:09:08 PM	A34787
Selenium	0.011	0.0011	0.0050		mg/L	5	6/9/2016 7:58:11 PM	B34821
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/9/2016 12:09:06 PM	25653
Arsenic	0.0087	0.00029	0.0010		mg/L	1	6/6/2016 12:15:56 PM	25653
Lead	0.0084	0.00017	0.00050		mg/L	1	6/6/2016 12:15:56 PM	25653
Selenium	0.014	0.0042	0.020	J	mg/L	20	6/7/2016 1:47:46 PM	25653
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000061	0.000053	0.00020	J	mg/L	1	6/3/2016 10:52:30 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 4:51:41 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Bis(2-ethylhexyl)phthalate	3.4	2.6	10	J	µg/L	1	6/2/2016 4:51:41 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Carbazole	3.4	2.3	10	J	µg/L	1	6/2/2016 4:51:41 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 4:51:41 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Di-n-octyl phthalate	5.0	2.0	10	J	µg/L	1	6/2/2016 4:51:41 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 4:51:41 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 4:51:41 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 4:51:41 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/2/2016 4:51:41 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
1-Methylnaphthalene	110	2.9	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Methylnaphthalene	130	2.9	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 4:51:41 PM	25618
3+4-Methylphenol	2.4	2.3	10	J	µg/L	1	6/2/2016 4:51:41 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 4:51:41 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Naphthalene	200	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 4:51:41 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 4:51:41 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 4:51:41 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Phenol	11	2.0	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 4:51:41 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 4:51:41 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 4:51:41 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 4:51:41 PM	25618
Surr: 2-Fluorophenol	39.8	0	15-123		%Rec	1	6/2/2016 4:51:41 PM	25618
Surr: Phenol-d5	41.7	0	4.13-124		%Rec	1	6/2/2016 4:51:41 PM	25618
Surr: 2,4,6-Tribromophenol	95.1	0	18.4-134		%Rec	1	6/2/2016 4:51:41 PM	25618
Surr: Nitrobenzene-d5	77.1	0	28.8-134		%Rec	1	6/2/2016 4:51:41 PM	25618
Surr: 2-Fluorobiphenyl	77.0	0	35.9-125		%Rec	1	6/2/2016 4:51:41 PM	25618
Surr: 4-Terphenyl-d14	80.4	0	15-146		%Rec	1	6/2/2016 4:51:41 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	5300	9.6	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Toluene	130	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Ethylbenzene	370	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Methyl tert-butyl ether (MTBE)	160	21	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2,4-Trimethylbenzene	820	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,3,5-Trimethylbenzene	200	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Naphthalene	280	9.3	200		µg/L	100	6/6/2016 8:31:00 PM	R34723
1-Methylnaphthalene	130	20	400	J	µg/L	100	6/6/2016 8:31:00 PM	R34723
2-Methylnaphthalene	160	16	400	J	µg/L	100	6/6/2016 8:31:00 PM	R34723
Acetone	ND	490	1000		µg/L	100	6/6/2016 8:31:00 PM	R34723
Bromobenzene	ND	9.8	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Bromodichloromethane	ND	14	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Bromoform	ND	10	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Bromomethane	ND	78	300		µg/L	100	6/6/2016 8:31:00 PM	R34723
2-Butanone	ND	74	1000		µg/L	100	6/6/2016 8:31:00 PM	R34723
Carbon disulfide	ND	60	1000		µg/L	100	6/6/2016 8:31:00 PM	R34723
Carbon Tetrachloride	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Chlorobenzene	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Chloroethane	ND	19	200		µg/L	100	6/6/2016 8:31:00 PM	R34723
Chloroform	ND	8.9	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Chloromethane	ND	21	300		µg/L	100	6/6/2016 8:31:00 PM	R34723
2-Chlorotoluene	ND	40	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
4-Chlorotoluene	ND	13	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
cis-1,2-DCE	ND	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
cis-1,3-Dichloropropene	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	23	200		µg/L	100	6/6/2016 8:31:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	8.7	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Dibromomethane	ND	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2-Dichlorobenzene	ND	40	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,3-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,4-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Dichlorodifluoromethane	ND	36	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1-Dichloroethane	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1-Dichloroethene	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2-Dichloropropane	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,3-Dichloropropane	ND	16	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
2,2-Dichloropropane	ND	17	200		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1-Dichloropropene	ND	13	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Hexachlorobutadiene	ND	20	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
2-Hexanone	ND	84	1000		µg/L	100	6/6/2016 8:31:00 PM	R34723
Isopropylbenzene	64	10	100	J	µg/L	100	6/6/2016 8:31:00 PM	R34723
4-Isopropyltoluene	ND	14	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
4-Methyl-2-pentanone	ND	43	1000		µg/L	100	6/6/2016 8:31:00 PM	R34723
Methylene Chloride	ND	19	300		µg/L	100	6/6/2016 8:31:00 PM	R34723
n-Butylbenzene	36	16	300	J	µg/L	100	6/6/2016 8:31:00 PM	R34723
n-Propylbenzene	120	13	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
sec-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Styrene	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
tert-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	13	200		µg/L	100	6/6/2016 8:31:00 PM	R34723
Tetrachloroethene (PCE)	ND	15	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
trans-1,2-DCE	ND	40	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
trans-1,3-Dichloropropene	ND	10	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2,3-Trichlorobenzene	ND	11	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2,4-Trichlorobenzene	ND	13	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1,1-Trichloroethane	ND	9.1	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,1,2-Trichloroethane	ND	13	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Trichloroethene (TCE)	ND	18	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Trichlorofluoromethane	ND	20	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
1,2,3-Trichloropropane	ND	20	200		µg/L	100	6/6/2016 8:31:00 PM	R34723
Vinyl chloride	ND	20	100		µg/L	100	6/6/2016 8:31:00 PM	R34723
Xylenes, Total	2100	37	150		µg/L	100	6/6/2016 8:31:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	92.2	0	70-130		%Rec	100	6/6/2016 8:31:00 PM	R34723
Surr: 4-Bromofluorobenzene	98.1	0	70-130		%Rec	100	6/6/2016 8:31:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-6-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 2:15:00 PM

Lab ID: 1605C89-001

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	91.2	0	70-130		%Rec	100	6/6/2016 8:31:00 PM	R34723
Surr: Toluene-d8	99.4	0	70-130		%Rec	100	6/6/2016 8:31:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-003

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/1/2016 4:15:31 PM	A34615
Surr: BFB	87.1	0	66.4-120		%Rec	1	6/1/2016 4:15:31 PM	A34615
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Toluene	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Naphthalene	ND	0.093	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Acetone	33	4.9	10		µg/L	1	6/6/2016 8:55:00 PM	R34723
Bromobenzene	ND	0.098	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Bromoform	ND	0.10	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Bromomethane	ND	0.78	3.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
2-Butanone	ND	0.74	10		µg/L	1	6/6/2016 8:55:00 PM	R34723
Carbon disulfide	ND	0.60	10		µg/L	1	6/6/2016 8:55:00 PM	R34723
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Chlorobenzene	2.8	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Chloroethane	ND	0.19	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Chloroform	ND	0.089	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Chloromethane	ND	0.21	3.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Dibromomethane	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-003

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
2-Hexanone	ND	0.84	10		µg/L	1	6/6/2016 8:55:00 PM	R34723
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/6/2016 8:55:00 PM	R34723
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Styrene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/6/2016 8:55:00 PM	R34723
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/6/2016 8:55:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	91.7	0	70-130		%Rec	1	6/6/2016 8:55:00 PM	R34723
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	6/6/2016 8:55:00 PM	R34723
Surr: Dibromofluoromethane	91.9	0	70-130		%Rec	1	6/6/2016 8:55:00 PM	R34723
Surr: Toluene-d8	98.5	0	70-130		%Rec	1	6/6/2016 8:55:00 PM	R34723

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/2/2016 4:25:47 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 4:25:47 AM	25599
Surr: DNOP	99.1	0	70-141		%Rec	1	6/2/2016 4:25:47 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	0.11	0.051	0.10	D	mg/L	2	6/1/2016 4:40:01 PM	A34615
Surr: BFB	91.3	0	66.4-120	D	%Rec	2	6/1/2016 4:40:01 PM	A34615
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	0.55	0.023	0.10		mg/L	1	5/27/2016 6:18:00 PM	R34562
Chloride	950	2.7	50		mg/L	100	6/2/2016 4:01:36 AM	A34634
Sulfate	110	1.3	10		mg/L	20	5/27/2016 6:30:24 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.083	0.0013	0.0020		mg/L	1	6/3/2016 3:03:29 PM	B34669
Beryllium	ND	0.00031	0.0020		mg/L	1	6/3/2016 3:03:29 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 3:03:29 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 3:03:29 PM	B34669
Cobalt	0.0087	0.00074	0.0060		mg/L	1	6/3/2016 3:03:29 PM	B34669
Iron	0.044	0.0091	0.020		mg/L	1	6/3/2016 3:03:29 PM	B34669
Manganese	0.018	0.00032	0.0020		mg/L	1	6/8/2016 1:49:19 PM	D34764
Nickel	0.19	0.0024	0.010	*	mg/L	1	6/3/2016 3:03:29 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 3:03:29 PM	B34669
Vanadium	0.0041	0.0013	0.050	J	mg/L	1	6/3/2016 3:03:29 PM	B34669
Zinc	ND	0.0028	0.010		mg/L	1	6/3/2016 3:03:29 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	5.3	0.013	0.020	*	mg/L	10	6/3/2016 3:53:18 PM	25653
Beryllium	0.019	0.00031	0.0020	*	mg/L	1	6/3/2016 11:10:13 AM	25653
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 11:10:13 AM	25653
Chromium	0.060	0.011	0.030		mg/L	5	6/8/2016 11:11:53 AM	25653
Cobalt	0.086	0.0043	0.030		mg/L	5	6/8/2016 11:11:53 AM	25653
Iron	45	0.45	1.0	*	mg/L	50	6/3/2016 3:55:14 PM	25653
Manganese	15	0.076	0.10	*	mg/L	50	6/3/2016 3:55:14 PM	25653
Nickel	0.30	0.012	0.050	*	mg/L	5	6/8/2016 11:11:53 AM	25653
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 11:10:13 AM	25653
Vanadium	0.077	0.0075	0.25	J	mg/L	5	6/8/2016 11:11:53 AM	25653
Zinc	0.21	0.019	0.050		mg/L	5	6/8/2016 11:11:53 AM	25653
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 5:14:16 PM	A34787
Arsenic	0.0064	0.0014	0.010	J	mg/L	10	6/9/2016 8:01:15 PM	B34821

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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00040	0.00017	0.00050	J	mg/L	1	6/8/2016 5:14:16 PM	A34787
Selenium	0.016	0.0021	0.010		mg/L	10	6/9/2016 8:01:15 PM	B34821
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/9/2016 12:30:10 PM	25731
Arsenic	0.020	0.0029	0.010	*	mg/L	10	6/7/2016 1:58:03 PM	25653
Lead	0.16	0.0017	0.0050	*	mg/L	10	6/7/2016 1:58:03 PM	25653
Selenium	0.021	0.011	0.050	J	mg/L	50	6/7/2016 2:13:32 PM	25653
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00024	0.000053	0.00020		mg/L	1	6/3/2016 10:54:31 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 6:24:26 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Bis(2-ethylhexyl)phthalate	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Carbazole	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Di-n-octyl phthalate	5.0	2.0	10	J	µg/L	1	6/2/2016 6:24:26 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 6:24:26 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 6:24:26 PM	25618
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 6:24:26 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Naphthalene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 6:24:26 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 6:24:26 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Phenol	ND	2.0	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 6:24:26 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 6:24:26 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 6:24:26 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 6:24:26 PM	25618
Surr: 2-Fluorophenol	11.0	0	15-123	S	%Rec	1	6/2/2016 6:24:26 PM	25618
Surr: Phenol-d5	15.3	0	4.13-124		%Rec	1	6/2/2016 6:24:26 PM	25618
Surr: 2,4,6-Tribromophenol	27.4	0	18.4-134		%Rec	1	6/2/2016 6:24:26 PM	25618
Surr: Nitrobenzene-d5	28.4	0	28.8-134	S	%Rec	1	6/2/2016 6:24:26 PM	25618
Surr: 2-Fluorobiphenyl	28.8	0	35.9-125	S	%Rec	1	6/2/2016 6:24:26 PM	25618
Surr: 4-Terphenyl-d14	50.3	0	15-146		%Rec	1	6/2/2016 6:24:26 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.19	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Toluene	ND	0.24	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Ethylbenzene	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Methyl tert-butyl ether (MTBE)	71	0.42	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2,4-Trimethylbenzene	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.23	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.23	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Naphthalene	0.22	0.19	4.0	J	µg/L	2	6/6/2016 9:19:00 PM	R34723
1-Methylnaphthalene	0.55	0.41	8.0	J	µg/L	2	6/6/2016 9:19:00 PM	R34723
2-Methylnaphthalene	0.71	0.32	8.0	J	µg/L	2	6/6/2016 9:19:00 PM	R34723
Acetone	13	9.8	20	J	µg/L	2	6/6/2016 9:19:00 PM	R34723
Bromobenzene	ND	0.20	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Bromodichloromethane	ND	0.28	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Bromoform	ND	0.20	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Bromomethane	ND	1.6	6.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
2-Butanone	ND	1.5	20		µg/L	2	6/6/2016 9:19:00 PM	R34723
Carbon disulfide	ND	1.2	20		µg/L	2	6/6/2016 9:19:00 PM	R34723
Carbon Tetrachloride	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Chlorobenzene	ND	0.23	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Chloroethane	ND	0.38	4.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Chloroform	ND	0.18	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Chloromethane	ND	0.43	6.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
2-Chlorotoluene	ND	0.80	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
4-Chlorotoluene	ND	0.26	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
cis-1,2-DCE	ND	0.25	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.21	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.47	4.0		µg/L	2	6/6/2016 9:19:00 PM	R34723

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.17	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Dibromomethane	ND	0.24	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2-Dichlorobenzene	ND	0.80	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,3-Dichlorobenzene	ND	0.29	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,4-Dichlorobenzene	ND	0.29	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Dichlorodifluoromethane	ND	0.71	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1-Dichloroethane	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1-Dichloroethene	ND	0.21	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2-Dichloropropane	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,3-Dichloropropane	ND	0.31	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
2,2-Dichloropropane	ND	0.33	4.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1-Dichloropropene	ND	0.27	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Hexachlorobutadiene	ND	0.40	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
2-Hexanone	ND	1.7	20		µg/L	2	6/6/2016 9:19:00 PM	R34723
Isopropylbenzene	ND	0.21	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
4-Isopropyltoluene	ND	0.28	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
4-Methyl-2-pentanone	ND	0.86	20		µg/L	2	6/6/2016 9:19:00 PM	R34723
Methylene Chloride	ND	0.37	6.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
n-Butylbenzene	ND	0.32	6.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
n-Propylbenzene	ND	0.26	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
sec-Butylbenzene	ND	0.25	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Styrene	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
tert-Butylbenzene	ND	0.23	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.22	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.26	4.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.30	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
trans-1,2-DCE	ND	0.80	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.21	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.23	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.27	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1,1-Trichloroethane	ND	0.18	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,1,2-Trichloroethane	ND	0.25	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Trichloroethene (TCE)	ND	0.35	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Trichlorofluoromethane	ND	0.41	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
1,2,3-Trichloropropane	ND	0.40	4.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Vinyl chloride	ND	0.39	2.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Xylenes, Total	ND	0.73	3.0		µg/L	2	6/6/2016 9:19:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	91.8	0	70-130		%Rec	2	6/6/2016 9:19:00 PM	R34723
Surr: 4-Bromofluorobenzene	98.2	0	70-130		%Rec	2	6/6/2016 9:19:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-4-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 3:00:00 PM

Lab ID: 1605C89-004

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	91.7	0	70-130		%Rec	2	6/6/2016 9:19:00 PM	R34723
Surr: Toluene-d8	99.1	0	70-130		%Rec	2	6/6/2016 9:19:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	7.3	0.69	1.0		mg/L	1	6/2/2016 4:47:25 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 4:47:25 AM	25599
Surr: DNOP	106	0	70-141		%Rec	1	6/2/2016 4:47:25 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	53	2.5	5.0		mg/L	100	6/1/2016 5:04:27 PM	A34615
Surr: BFB	106	0	66.4-120		%Rec	100	6/1/2016 5:04:27 PM	A34615
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	1.2	0.023	0.10		mg/L	1	5/27/2016 6:42:49 PM	R34562
Chloride	350	1.4	25		mg/L	50	6/2/2016 4:14:01 AM	A34634
Sulfate	0.40	0.064	0.50	J	mg/L	1	5/27/2016 6:42:49 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	3.5	0.0066	0.010	*	mg/L	5	6/3/2016 3:16:49 PM	B34669
Beryllium	ND	0.00031	0.0020		mg/L	1	6/3/2016 3:15:10 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 3:15:10 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 3:15:10 PM	B34669
Cobalt	0.0022	0.00074	0.0060	J	mg/L	1	6/3/2016 3:15:10 PM	B34669
Iron	5.6	0.091	0.20	*	mg/L	10	6/8/2016 1:53:27 PM	D34764
Manganese	1.9	0.0016	0.010	*	mg/L	5	6/3/2016 3:16:49 PM	B34669
Nickel	0.023	0.0024	0.010		mg/L	1	6/3/2016 3:15:10 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 3:15:10 PM	B34669
Vanadium	0.0031	0.0013	0.050	J	mg/L	1	6/3/2016 3:15:10 PM	B34669
Zinc	0.0066	0.0028	0.010	J	mg/L	1	6/3/2016 3:15:10 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	4.8	0.0066	0.010	*	mg/L	5	6/3/2016 11:30:23 AM	25653
Beryllium	0.0026	0.00031	0.0020		mg/L	1	6/3/2016 11:28:35 AM	25653
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 11:28:35 AM	25653
Chromium	0.0078	0.0022	0.0060		mg/L	1	6/3/2016 11:28:35 AM	25653
Cobalt	0.0086	0.00085	0.0060		mg/L	1	6/3/2016 11:28:35 AM	25653
Iron	14	0.18	0.40	*	mg/L	20	6/3/2016 3:57:11 PM	25653
Manganese	2.7	0.0076	0.010	*	mg/L	5	6/3/2016 11:30:23 AM	25653
Nickel	0.032	0.0024	0.010		mg/L	1	6/3/2016 11:28:35 AM	25653
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 11:28:35 AM	25653
Vanadium	0.030	0.0015	0.050	J	mg/L	1	6/3/2016 11:28:35 AM	25653
Zinc	0.026	0.0039	0.010		mg/L	1	6/3/2016 11:28:35 AM	25653
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	0.0010	0.00047	0.0010	J	mg/L	1	6/8/2016 5:19:25 PM	A34787
Arsenic	0.023	0.00014	0.0010	*	mg/L	1	6/8/2016 5:19:25 PM	A34787

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00034	0.00017	0.00050	J	mg/L	1	6/8/2016 5:19:25 PM	A34787
Selenium	0.0060	0.0042	0.020	J	mg/L	20	6/10/2016 3:51:37 PM	A34855
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.0024	0.0050		mg/L	5	6/9/2016 2:18:16 PM	25653
Arsenic	0.023	0.00029	0.0010	*	mg/L	1	6/6/2016 12:21:57 PM	25653
Lead	0.024	0.00084	0.0025	*	mg/L	5	6/7/2016 2:28:57 PM	25653
Selenium	0.010	0.0042	0.020	J	mg/L	20	6/7/2016 2:39:14 PM	25653
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/3/2016 10:56:32 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 6:55:41 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Bis(2-ethylhexyl)phthalate	3.4	2.6	10	J	µg/L	1	6/2/2016 6:55:41 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Carbazole	2.3	2.3	10	J	µg/L	1	6/2/2016 6:55:41 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 6:55:41 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Di-n-octyl phthalate	6.2	2.0	10	J	µg/L	1	6/2/2016 6:55:41 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 6:55:41 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 6:55:41 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 6:55:41 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4-Dimethylphenol	37	3.0	10		µg/L	1	6/2/2016 6:55:41 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
1-Methylnaphthalene	110	2.9	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2-Methylnaphthalene	120	2.9	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 6:55:41 PM	25618
3+4-Methylphenol	5.7	2.3	10	J	µg/L	1	6/2/2016 6:55:41 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 6:55:41 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Naphthalene	280	13	50		µg/L	5	6/7/2016 11:48:45 AM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 6:55:41 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 6:55:41 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 6:55:41 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Phenol	14	2.0	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 6:55:41 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 6:55:41 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 6:55:41 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 6:55:41 PM	25618
Surr: 2-Fluorophenol	22.8	0	15-123		%Rec	1	6/2/2016 6:55:41 PM	25618
Surr: Phenol-d5	39.6	0	4.13-124		%Rec	1	6/2/2016 6:55:41 PM	25618
Surr: 2,4,6-Tribromophenol	74.3	0	18.4-134		%Rec	1	6/2/2016 6:55:41 PM	25618
Surr: Nitrobenzene-d5	77.4	0	28.8-134		%Rec	1	6/2/2016 6:55:41 PM	25618
Surr: 2-Fluorobiphenyl	75.1	0	35.9-125		%Rec	1	6/2/2016 6:55:41 PM	25618
Surr: 4-Terphenyl-d14	85.7	0	15-146		%Rec	1	6/2/2016 6:55:41 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	8200	9.6	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Toluene	330	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Ethylbenzene	1400	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Methyl tert-butyl ether (MTBE)	180	21	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2,4-Trimethylbenzene	1500	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,3,5-Trimethylbenzene	400	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Naphthalene	390	9.3	200		µg/L	100	6/6/2016 9:42:00 PM	R34723
1-Methylnaphthalene	97	20	400	J	µg/L	100	6/6/2016 9:42:00 PM	R34723
2-Methylnaphthalene	130	16	400	J	µg/L	100	6/6/2016 9:42:00 PM	R34723
Acetone	ND	490	1000		µg/L	100	6/6/2016 9:42:00 PM	R34723
Bromobenzene	ND	9.8	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Bromodichloromethane	ND	14	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Bromoform	ND	10	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Bromomethane	ND	78	300		µg/L	100	6/6/2016 9:42:00 PM	R34723
2-Butanone	ND	74	1000		µg/L	100	6/6/2016 9:42:00 PM	R34723
Carbon disulfide	ND	60	1000		µg/L	100	6/6/2016 9:42:00 PM	R34723
Carbon Tetrachloride	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Chlorobenzene	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Chloroethane	ND	19	200		µg/L	100	6/6/2016 9:42:00 PM	R34723
Chloroform	ND	8.9	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Chloromethane	ND	21	300		µg/L	100	6/6/2016 9:42:00 PM	R34723
2-Chlorotoluene	ND	40	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
4-Chlorotoluene	ND	13	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
cis-1,2-DCE	ND	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
cis-1,3-Dichloropropene	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	23	200		µg/L	100	6/6/2016 9:42:00 PM	R34723

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	8.7	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Dibromomethane	ND	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2-Dichlorobenzene	ND	40	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,3-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,4-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Dichlorodifluoromethane	ND	36	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1-Dichloroethane	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1-Dichloroethene	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2-Dichloropropane	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,3-Dichloropropane	ND	16	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
2,2-Dichloropropane	ND	17	200		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1-Dichloropropene	ND	13	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Hexachlorobutadiene	ND	20	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
2-Hexanone	ND	84	1000		µg/L	100	6/6/2016 9:42:00 PM	R34723
Isopropylbenzene	87	10	100	J	µg/L	100	6/6/2016 9:42:00 PM	R34723
4-Isopropyltoluene	ND	14	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
4-Methyl-2-pentanone	ND	43	1000		µg/L	100	6/6/2016 9:42:00 PM	R34723
Methylene Chloride	ND	19	300		µg/L	100	6/6/2016 9:42:00 PM	R34723
n-Butylbenzene	57	16	300	J	µg/L	100	6/6/2016 9:42:00 PM	R34723
n-Propylbenzene	250	13	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
sec-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Styrene	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
tert-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	13	200		µg/L	100	6/6/2016 9:42:00 PM	R34723
Tetrachloroethene (PCE)	ND	15	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
trans-1,2-DCE	ND	40	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
trans-1,3-Dichloropropene	ND	10	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2,3-Trichlorobenzene	ND	11	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2,4-Trichlorobenzene	ND	13	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1,1-Trichloroethane	ND	9.1	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,1,2-Trichloroethane	ND	13	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Trichloroethene (TCE)	ND	18	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Trichlorofluoromethane	ND	20	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
1,2,3-Trichloropropane	ND	20	200		µg/L	100	6/6/2016 9:42:00 PM	R34723
Vinyl chloride	ND	20	100		µg/L	100	6/6/2016 9:42:00 PM	R34723
Xylenes, Total	5700	37	150		µg/L	100	6/6/2016 9:42:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	89.8	0	70-130		%Rec	100	6/6/2016 9:42:00 PM	R34723
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	100	6/6/2016 9:42:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-11-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 4:15:00 PM

Lab ID: 1605C89-006

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	90.7	0	70-130		%Rec	100	6/6/2016 9:42:00 PM	R34723
Surr: Toluene-d8	98.5	0	70-130		%Rec	100	6/6/2016 9:42:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/2/2016 5:08:52 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 5:08:52 AM	25599
Surr: DNOP	95.9	0	70-141		%Rec	1	6/2/2016 5:08:52 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	0.54	0.025	0.050		mg/L	1	6/3/2016 12:32:03 PM	B34677
Surr: BFB	166	0	66.4-120	S	%Rec	1	6/3/2016 12:32:03 PM	B34677
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	0.27	0.023	0.10		mg/L	1	5/27/2016 7:07:38 PM	R34562
Chloride	670	1.4	25		mg/L	50	6/2/2016 4:26:25 AM	A34634
Sulfate	42	0.064	0.50		mg/L	1	5/27/2016 7:07:38 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.27	0.0013	0.0020		mg/L	1	6/3/2016 3:18:45 PM	B34669
Beryllium	ND	0.00031	0.0020		mg/L	1	6/3/2016 3:18:45 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 3:18:45 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 3:18:45 PM	B34669
Cobalt	0.024	0.00074	0.0060		mg/L	1	6/3/2016 3:18:45 PM	B34669
Iron	0.043	0.0091	0.020		mg/L	1	6/3/2016 3:18:45 PM	B34669
Manganese	2.9	0.0016	0.010	*	mg/L	5	6/3/2016 3:20:39 PM	B34669
Nickel	0.086	0.0024	0.010		mg/L	1	6/3/2016 3:18:45 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 3:18:45 PM	B34669
Vanadium	0.0048	0.0013	0.050	J	mg/L	1	6/3/2016 3:18:45 PM	B34669
Zinc	0.023	0.0028	0.010		mg/L	1	6/3/2016 3:18:45 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	0.37	0.0013	0.0020		mg/L	1	6/3/2016 11:32:10 AM	25653
Beryllium	0.00055	0.00031	0.0020	J	mg/L	1	6/3/2016 11:32:10 AM	25653
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 11:32:10 AM	25653
Chromium	0.0050	0.0022	0.0060	J	mg/L	1	6/3/2016 11:32:10 AM	25653
Cobalt	0.026	0.00085	0.0060		mg/L	1	6/3/2016 11:32:10 AM	25653
Iron	3.0	0.045	0.10	*	mg/L	5	6/3/2016 11:33:55 AM	25653
Manganese	3.2	0.0076	0.010	*	mg/L	5	6/3/2016 11:33:55 AM	25653
Nickel	0.088	0.0024	0.010		mg/L	1	6/3/2016 11:32:10 AM	25653
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 11:32:10 AM	25653
Vanadium	0.0087	0.0015	0.050	J	mg/L	1	6/3/2016 11:32:10 AM	25653
Zinc	0.034	0.0039	0.010		mg/L	1	6/3/2016 11:32:10 AM	25653
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 5:24:33 PM	A34787
Arsenic	0.0071	0.0028	0.020	J	mg/L	20	6/9/2016 8:16:34 PM	B34821

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.0021	0.00017	0.00050		mg/L	1	6/8/2016 5:24:33 PM	A34787
Selenium	0.015	0.0011	0.0050		mg/L	5	6/9/2016 8:13:31 PM	B34821
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/9/2016 12:50:44 PM	25653
Arsenic	0.0094	0.0058	0.020	J	mg/L	20	6/7/2016 3:25:34 PM	25653
Lead	0.0079	0.00017	0.00050		mg/L	1	6/6/2016 12:27:58 PM	25653
Selenium	0.015	0.0042	0.020	J	mg/L	20	6/7/2016 3:25:34 PM	25653
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/3/2016 11:02:47 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 7:26:59 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Bis(2-ethylhexyl)phthalate	4.7	2.6	10	J	µg/L	1	6/2/2016 7:26:59 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Carbazole	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Di-n-octyl phthalate	5.2	2.0	10	J	µg/L	1	6/2/2016 7:26:59 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 7:26:59 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 7:26:59 PM	25618
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 7:26:59 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Naphthalene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 7:26:59 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 7:26:59 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Phenol	ND	2.0	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 7:26:59 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 7:26:59 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 7:26:59 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 7:26:59 PM	25618
Surr: 2-Fluorophenol	47.6	0	15-123		%Rec	1	6/2/2016 7:26:59 PM	25618
Surr: Phenol-d5	43.0	0	4.13-124		%Rec	1	6/2/2016 7:26:59 PM	25618
Surr: 2,4,6-Tribromophenol	75.1	0	18.4-134		%Rec	1	6/2/2016 7:26:59 PM	25618
Surr: Nitrobenzene-d5	74.9	0	28.8-134		%Rec	1	6/2/2016 7:26:59 PM	25618
Surr: 2-Fluorobiphenyl	72.7	0	35.9-125		%Rec	1	6/2/2016 7:26:59 PM	25618
Surr: 4-Terphenyl-d14	75.9	0	15-146		%Rec	1	6/2/2016 7:26:59 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	47	0.19	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Toluene	0.34	0.24	2.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
Ethylbenzene	67	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Methyl tert-butyl ether (MTBE)	75	0.42	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2,4-Trimethylbenzene	2.7	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.23	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.23	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Naphthalene	0.40	0.19	4.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
1-Methylnaphthalene	0.87	0.41	8.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
2-Methylnaphthalene	0.77	0.32	8.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
Acetone	19	9.8	20	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
Bromobenzene	ND	0.20	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Bromodichloromethane	ND	0.28	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Bromoform	ND	0.20	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Bromomethane	ND	1.6	6.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
2-Butanone	ND	1.5	20		µg/L	2	6/6/2016 10:06:00 PM	R34723
Carbon disulfide	ND	1.2	20		µg/L	2	6/6/2016 10:06:00 PM	R34723
Carbon Tetrachloride	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Chlorobenzene	ND	0.23	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Chloroethane	ND	0.38	4.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Chloroform	ND	0.18	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Chloromethane	ND	0.43	6.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
2-Chlorotoluene	ND	0.80	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
4-Chlorotoluene	ND	0.26	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
cis-1,2-DCE	ND	0.25	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.21	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.47	4.0		µg/L	2	6/6/2016 10:06:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.17	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Dibromomethane	ND	0.24	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2-Dichlorobenzene	ND	0.80	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,3-Dichlorobenzene	ND	0.29	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,4-Dichlorobenzene	ND	0.29	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Dichlorodifluoromethane	ND	0.71	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1-Dichloroethane	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1-Dichloroethene	ND	0.21	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2-Dichloropropane	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,3-Dichloropropane	ND	0.31	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
2,2-Dichloropropane	ND	0.33	4.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1-Dichloropropene	ND	0.27	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Hexachlorobutadiene	ND	0.40	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
2-Hexanone	ND	1.7	20		µg/L	2	6/6/2016 10:06:00 PM	R34723
Isopropylbenzene	8.4	0.21	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
4-Isopropyltoluene	ND	0.28	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
4-Methyl-2-pentanone	ND	0.86	20		µg/L	2	6/6/2016 10:06:00 PM	R34723
Methylene Chloride	ND	0.37	6.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
n-Butylbenzene	1.1	0.32	6.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
n-Propylbenzene	8.4	0.26	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
sec-Butylbenzene	1.1	0.25	2.0	J	µg/L	2	6/6/2016 10:06:00 PM	R34723
Styrene	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
tert-Butylbenzene	ND	0.23	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.22	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.26	4.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.30	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
trans-1,2-DCE	ND	0.80	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.21	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.23	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.27	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1,1-Trichloroethane	ND	0.18	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,1,2-Trichloroethane	ND	0.25	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Trichloroethene (TCE)	ND	0.35	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Trichlorofluoromethane	ND	0.41	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
1,2,3-Trichloropropane	ND	0.40	4.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Vinyl chloride	ND	0.39	2.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Xylenes, Total	ND	0.73	3.0		µg/L	2	6/6/2016 10:06:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	90.3	0	70-130		%Rec	2	6/6/2016 10:06:00 PM	R34723
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	2	6/6/2016 10:06:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: NDD-16-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016 5:00:00 PM

Lab ID: 1605C89-008

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	90.3	0	70-130		%Rec	2	6/6/2016 10:06:00 PM	R34723
Surr: Toluene-d8	98.9	0	70-130		%Rec	2	6/6/2016 10:06:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-010

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/1/2016 8:20:18 PM	A34615
Surr: BFB	80.1	0	66.4-120		%Rec	1	6/1/2016 8:20:18 PM	A34615
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Toluene	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Naphthalene	ND	0.093	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Acetone	40	4.9	10		µg/L	1	6/6/2016 10:30:00 PM	R34723
Bromobenzene	ND	0.098	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Bromoform	ND	0.10	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Bromomethane	ND	0.78	3.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
2-Butanone	ND	0.74	10		µg/L	1	6/6/2016 10:30:00 PM	R34723
Carbon disulfide	ND	0.60	10		µg/L	1	6/6/2016 10:30:00 PM	R34723
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Chlorobenzene	2.7	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Chloroethane	ND	0.19	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Chloroform	ND	0.089	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Chloromethane	ND	0.21	3.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Dibromomethane	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-010

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
2-Hexanone	ND	0.84	10		µg/L	1	6/6/2016 10:30:00 PM	R34723
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/6/2016 10:30:00 PM	R34723
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Styrene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/6/2016 10:30:00 PM	R34723
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/6/2016 10:30:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	90.1	0	70-130		%Rec	1	6/6/2016 10:30:00 PM	R34723
Surr: 4-Bromofluorobenzene	99.4	0	70-130		%Rec	1	6/6/2016 10:30:00 PM	R34723
Surr: Dibromofluoromethane	90.2	0	70-130		%Rec	1	6/6/2016 10:30:00 PM	R34723
Surr: Toluene-d8	98.9	0	70-130		%Rec	1	6/6/2016 10:30:00 PM	R34723

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/2/2016 5:30:23 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 5:30:23 AM	25599
Surr: DNOP	95.1	0	70-141		%Rec	1	6/2/2016 5:30:23 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/1/2016 8:44:49 PM	A34615
Surr: BFB	80.9	0	66.4-120		%Rec	1	6/1/2016 8:44:49 PM	A34615
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	ND	0.023	0.10		mg/L	1	5/27/2016 7:57:17 PM	R34562
Chloride	0.074	0.027	0.50	J	mg/L	1	5/27/2016 7:57:17 PM	R34562
Sulfate	ND	0.064	0.50		mg/L	1	5/27/2016 7:57:17 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/3/2016 3:22:35 PM	B34669
Beryllium	ND	0.00031	0.0020		mg/L	1	6/3/2016 3:22:35 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 3:22:35 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 3:22:35 PM	B34669
Cobalt	ND	0.00074	0.0060		mg/L	1	6/3/2016 3:22:35 PM	B34669
Iron	ND	0.0091	0.020		mg/L	1	6/3/2016 3:22:35 PM	B34669
Manganese	ND	0.00032	0.0020		mg/L	1	6/3/2016 3:22:35 PM	B34669
Nickel	ND	0.0024	0.010		mg/L	1	6/3/2016 3:22:35 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 3:22:35 PM	B34669
Vanadium	ND	0.0013	0.050		mg/L	1	6/3/2016 3:22:35 PM	B34669
Zinc	ND	0.0028	0.010		mg/L	1	6/3/2016 3:22:35 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/1/2016 6:16:15 PM	B34614
Beryllium	ND	0.00031	0.0020		mg/L	1	6/1/2016 6:16:15 PM	B34614
Cadmium	ND	0.00075	0.0020		mg/L	1	6/1/2016 6:16:15 PM	B34614
Chromium	ND	0.0022	0.0060		mg/L	1	6/1/2016 6:16:15 PM	B34614
Cobalt	ND	0.00085	0.0060		mg/L	1	6/1/2016 6:16:15 PM	B34614
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 6:16:15 PM	B34614
Manganese	ND	0.0015	0.0020		mg/L	1	6/1/2016 6:16:15 PM	B34614
Nickel	ND	0.0024	0.010		mg/L	1	6/1/2016 6:16:15 PM	B34614
Silver	ND	0.0028	0.0050		mg/L	1	6/1/2016 6:16:15 PM	B34614
Vanadium	ND	0.0015	0.050		mg/L	1	6/1/2016 6:16:15 PM	B34614
Zinc	ND	0.0039	0.010		mg/L	1	6/1/2016 6:16:15 PM	B34614
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 5:40:01 PM	A34787
Arsenic	ND	0.00014	0.0010		mg/L	1	6/8/2016 5:40:01 PM	A34787

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	ND	0.00017	0.00050		mg/L	1	6/8/2016 5:40:01 PM	A34787
Selenium	ND	0.00021	0.0010		mg/L	1	6/8/2016 5:40:01 PM	A34787
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/2/2016 1:57:23 PM	B34651
Arsenic	ND	0.00029	0.0010		mg/L	1	6/2/2016 1:57:23 PM	B34651
Lead	ND	0.00017	0.00050		mg/L	1	6/2/2016 1:57:23 PM	B34651
Selenium	ND	0.00021	0.0010		mg/L	1	6/2/2016 1:57:23 PM	B34651
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/3/2016 11:04:49 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 7:58:11 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Bis(2-ethylhexyl)phthalate	3.3	2.6	10	J	µg/L	1	6/2/2016 7:58:11 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Carbazole	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Di-n-octyl phthalate	5.0	2.0	10	J	µg/L	1	6/2/2016 7:58:11 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618

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

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 7:58:11 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 7:58:11 PM	25618
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 7:58:11 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Naphthalene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 7:58:11 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 7:58:11 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Phenol	ND	2.0	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 7:58:11 PM	25618

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 7:58:11 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 7:58:11 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 7:58:11 PM	25618
Surr: 2-Fluorophenol	1.98	0	15-123	S	%Rec	1	6/2/2016 7:58:11 PM	25618
Surr: Phenol-d5	4.28	0	4.13-124		%Rec	1	6/2/2016 7:58:11 PM	25618
Surr: 2,4,6-Tribromophenol	3.03	0	18.4-134	S	%Rec	1	6/2/2016 7:58:11 PM	25618
Surr: Nitrobenzene-d5	71.3	0	28.8-134		%Rec	1	6/2/2016 7:58:11 PM	25618
Surr: 2-Fluorobiphenyl	65.1	0	35.9-125		%Rec	1	6/2/2016 7:58:11 PM	25618
Surr: 4-Terphenyl-d14	74.5	0	15-146		%Rec	1	6/2/2016 7:58:11 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Toluene	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Ethylbenzene	0.12	0.11	1.0	J	µg/L	1	6/6/2016 7:20:00 PM	R34723
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Naphthalene	0.24	0.093	2.0	J	µg/L	1	6/6/2016 7:20:00 PM	R34723
1-Methylnaphthalene	0.48	0.20	4.0	J	µg/L	1	6/6/2016 7:20:00 PM	R34723
2-Methylnaphthalene	0.43	0.16	4.0	J	µg/L	1	6/6/2016 7:20:00 PM	R34723
Acetone	ND	4.9	10		µg/L	1	6/6/2016 7:20:00 PM	R34723
Bromobenzene	ND	0.098	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Bromoform	ND	0.10	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Bromomethane	ND	0.78	3.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
2-Butanone	ND	0.74	10		µg/L	1	6/6/2016 7:20:00 PM	R34723
Carbon disulfide	ND	0.60	10		µg/L	1	6/6/2016 7:20:00 PM	R34723
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Chloroethane	ND	0.19	2.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Chloroform	ND	0.089	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Chloromethane	ND	0.21	3.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/6/2016 7:20:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Dibromomethane	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
2-Hexanone	ND	0.84	10		µg/L	1	6/6/2016 7:20:00 PM	R34723
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/6/2016 7:20:00 PM	R34723
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Styrene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/6/2016 7:20:00 PM	R34723
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/6/2016 7:20:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	91.4	0	70-130		%Rec	1	6/6/2016 7:20:00 PM	R34723
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	6/6/2016 7:20:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: EB052616

Project: North Drainage Ditch

Collection Date: 5/26/2016 7:00:00 PM

Lab ID: 1605C89-011

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	91.0	0	70-130		%Rec	1	6/6/2016 7:20:00 PM	R34723
Surr: Toluene-d8	100	0	70-130		%Rec	1	6/6/2016 7:20:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: KJH	
Diesel Range Organics (DRO)	7.4	0.69	1.0		mg/L	1	6/2/2016 5:51:44 AM	25599
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/2/2016 5:51:44 AM	25599
Surr: DNOP	96.0	0	70-141		%Rec	1	6/2/2016 5:51:44 AM	25599
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	52	2.5	5.0		mg/L	100	6/1/2016 9:09:21 PM	A34615
Surr: BFB	98.4	0	66.4-120		%Rec	100	6/1/2016 9:09:21 PM	A34615
EPA METHOD 300.0: ANIONS							Analyst: JRR	
Fluoride	1.3	0.11	0.50		mg/L	5	5/27/2016 8:22:07 PM	R34562
Chloride	370	1.4	25		mg/L	50	6/2/2016 4:38:50 AM	A34634
Sulfate	0.69	0.32	2.5	J	mg/L	5	5/27/2016 8:22:07 PM	R34562
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	3.4	0.0066	0.010	*	mg/L	5	6/3/2016 3:28:14 PM	B34669
Beryllium	ND	0.00031	0.0020		mg/L	1	6/3/2016 3:26:33 PM	B34669
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 3:26:33 PM	B34669
Chromium	ND	0.0018	0.0060		mg/L	1	6/3/2016 3:26:33 PM	B34669
Cobalt	0.0016	0.00074	0.0060	J	mg/L	1	6/3/2016 3:26:33 PM	B34669
Iron	5.8	0.091	0.20	*	mg/L	10	6/8/2016 1:55:25 PM	D34764
Manganese	1.9	0.0016	0.010	*	mg/L	5	6/3/2016 3:28:14 PM	B34669
Nickel	0.023	0.0024	0.010		mg/L	1	6/3/2016 3:26:33 PM	B34669
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 3:26:33 PM	B34669
Vanadium	0.0030	0.0013	0.050	J	mg/L	1	6/3/2016 3:26:33 PM	B34669
Zinc	0.0066	0.0028	0.010	J	mg/L	1	6/3/2016 3:26:33 PM	B34669
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	5.3	0.026	0.040	*	mg/L	20	6/3/2016 3:59:09 PM	25653
Beryllium	0.0033	0.00031	0.0020		mg/L	1	6/3/2016 11:35:53 AM	25653
Cadmium	ND	0.00075	0.0020		mg/L	1	6/3/2016 11:35:53 AM	25653
Chromium	0.010	0.0022	0.0060		mg/L	1	6/3/2016 11:35:53 AM	25653
Cobalt	0.011	0.00085	0.0060		mg/L	1	6/3/2016 11:35:53 AM	25653
Iron	17	0.18	0.40	*	mg/L	20	6/3/2016 3:59:09 PM	25653
Manganese	3.0	0.0076	0.010	*	mg/L	5	6/3/2016 11:37:39 AM	25653
Nickel	0.036	0.0024	0.010		mg/L	1	6/3/2016 11:35:53 AM	25653
Silver	ND	0.0028	0.0050		mg/L	1	6/3/2016 11:35:53 AM	25653
Vanadium	0.037	0.0015	0.050	J	mg/L	1	6/3/2016 11:35:53 AM	25653
Zinc	0.032	0.0039	0.010		mg/L	1	6/3/2016 11:35:53 AM	25653
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	0.0011	0.00047	0.0010		mg/L	1	6/8/2016 5:45:10 PM	A34787
Arsenic	0.023	0.00014	0.0010	*	mg/L	1	6/8/2016 5:45:10 PM	A34787

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00033	0.00017	0.00050	J	mg/L	1	6/8/2016 5:45:10 PM	A34787
Selenium	0.0057	0.0042	0.020	J	mg/L	20	6/10/2016 4:01:55 PM	A34855
EPA 200.8: METALS							Analyst: JLF	
Antimony	0.0010	0.00047	0.0010		mg/L	1	6/9/2016 1:06:09 PM	25653
Arsenic	0.022	0.00029	0.0010	*	mg/L	1	6/6/2016 12:43:04 PM	25653
Lead	0.033	0.00084	0.0025	*	mg/L	5	6/7/2016 3:35:51 PM	25653
Selenium	0.012	0.0042	0.020	J	mg/L	20	6/7/2016 3:40:59 PM	25653
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/3/2016 11:06:52 AM	25649
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Acenaphthylene	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Aniline	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Anthracene	ND	2.5	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Azobenzene	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzoic acid	ND	2.6	20		µg/L	1	6/2/2016 8:29:20 PM	25618
Benzyl alcohol	ND	3.0	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Bis(2-ethylhexyl)phthalate	3.6	2.6	10	J	µg/L	1	6/2/2016 8:29:20 PM	25618
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Carbazole	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4-Chloroaniline	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2-Chlorophenol	ND	2.2	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Chrysene	ND	2.8	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Di-n-octyl phthalate	5.9	2.0	10	J	µg/L	1	6/2/2016 8:29:20 PM	25618
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/2/2016 8:29:20 PM	25618
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Diethyl phthalate	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4-Dimethylphenol	35	3.0	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Fluoranthene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Fluorene	ND	2.7	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Hexachloroethane	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Isophorone	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
1-Methylnaphthalene	89	2.9	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2-Methylnaphthalene	110	2.9	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2-Methylphenol	ND	2.5	10		µg/L	1	6/2/2016 8:29:20 PM	25618
3+4-Methylphenol	4.4	2.3	10	J	µg/L	1	6/2/2016 8:29:20 PM	25618
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/2/2016 8:29:20 PM	25618
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Naphthalene	240	13	50		µg/L	5	6/7/2016 12:19:24 PM	25618
2-Nitroaniline	ND	2.8	10		µg/L	1	6/2/2016 8:29:20 PM	25618
3-Nitroaniline	ND	2.9	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4-Nitroaniline	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Nitrobenzene	ND	2.8	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2-Nitrophenol	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
4-Nitrophenol	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Pentachlorophenol	ND	2.3	20		µg/L	1	6/2/2016 8:29:20 PM	25618
Phenanthrene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Phenol	12	2.0	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Pyrene	ND	3.1	10		µg/L	1	6/2/2016 8:29:20 PM	25618

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/2/2016 8:29:20 PM	25618
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/2/2016 8:29:20 PM	25618
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/2/2016 8:29:20 PM	25618
Surr: 2-Fluorophenol	20.1	0	15-123		%Rec	1	6/2/2016 8:29:20 PM	25618
Surr: Phenol-d5	33.8	0	4.13-124		%Rec	1	6/2/2016 8:29:20 PM	25618
Surr: 2,4,6-Tribromophenol	70.2	0	18.4-134		%Rec	1	6/2/2016 8:29:20 PM	25618
Surr: Nitrobenzene-d5	61.1	0	28.8-134		%Rec	1	6/2/2016 8:29:20 PM	25618
Surr: 2-Fluorobiphenyl	70.8	0	35.9-125		%Rec	1	6/2/2016 8:29:20 PM	25618
Surr: 4-Terphenyl-d14	76.6	0	15-146		%Rec	1	6/2/2016 8:29:20 PM	25618
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	8400	9.6	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Toluene	340	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Ethylbenzene	1500	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Methyl tert-butyl ether (MTBE)	180	21	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2,4-Trimethylbenzene	1600	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,3,5-Trimethylbenzene	420	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Naphthalene	410	9.3	200		µg/L	100	6/6/2016 10:53:00 PM	R34723
1-Methylnaphthalene	100	20	400	J	µg/L	100	6/6/2016 10:53:00 PM	R34723
2-Methylnaphthalene	140	16	400	J	µg/L	100	6/6/2016 10:53:00 PM	R34723
Acetone	ND	490	1000		µg/L	100	6/6/2016 10:53:00 PM	R34723
Bromobenzene	ND	9.8	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Bromodichloromethane	ND	14	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Bromoform	ND	10	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Bromomethane	ND	78	300		µg/L	100	6/6/2016 10:53:00 PM	R34723
2-Butanone	ND	74	1000		µg/L	100	6/6/2016 10:53:00 PM	R34723
Carbon disulfide	ND	60	1000		µg/L	100	6/6/2016 10:53:00 PM	R34723
Carbon Tetrachloride	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Chlorobenzene	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Chloroethane	ND	19	200		µg/L	100	6/6/2016 10:53:00 PM	R34723
Chloroform	ND	8.9	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Chloromethane	ND	21	300		µg/L	100	6/6/2016 10:53:00 PM	R34723
2-Chlorotoluene	ND	40	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
4-Chlorotoluene	ND	13	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
cis-1,2-DCE	ND	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
cis-1,3-Dichloropropene	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	23	200		µg/L	100	6/6/2016 10:53:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	8.7	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Dibromomethane	ND	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2-Dichlorobenzene	ND	40	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,3-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,4-Dichlorobenzene	ND	14	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Dichlorodifluoromethane	ND	36	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1-Dichloroethane	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1-Dichloroethene	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2-Dichloropropane	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,3-Dichloropropane	ND	16	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
2,2-Dichloropropane	ND	17	200		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1-Dichloropropene	ND	13	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Hexachlorobutadiene	ND	20	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
2-Hexanone	ND	84	1000		µg/L	100	6/6/2016 10:53:00 PM	R34723
Isopropylbenzene	91	10	100	J	µg/L	100	6/6/2016 10:53:00 PM	R34723
4-Isopropyltoluene	ND	14	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
4-Methyl-2-pentanone	ND	43	1000		µg/L	100	6/6/2016 10:53:00 PM	R34723
Methylene Chloride	ND	19	300		µg/L	100	6/6/2016 10:53:00 PM	R34723
n-Butylbenzene	60	16	300	J	µg/L	100	6/6/2016 10:53:00 PM	R34723
n-Propylbenzene	260	13	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
sec-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Styrene	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
tert-Butylbenzene	ND	12	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	13	200		µg/L	100	6/6/2016 10:53:00 PM	R34723
Tetrachloroethene (PCE)	ND	15	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
trans-1,2-DCE	ND	40	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
trans-1,3-Dichloropropene	ND	10	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2,3-Trichlorobenzene	ND	11	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2,4-Trichlorobenzene	ND	13	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1,1-Trichloroethane	ND	9.1	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,1,2-Trichloroethane	ND	13	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Trichloroethene (TCE)	ND	18	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Trichlorofluoromethane	ND	20	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
1,2,3-Trichloropropane	ND	20	200		µg/L	100	6/6/2016 10:53:00 PM	R34723
Vinyl chloride	ND	20	100		µg/L	100	6/6/2016 10:53:00 PM	R34723
Xylenes, Total	5900	37	150		µg/L	100	6/6/2016 10:53:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	89.1	0	70-130		%Rec	100	6/6/2016 10:53:00 PM	R34723
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	100	6/6/2016 10:53:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605C89**

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP01-GW

Project: North Drainage Ditch

Collection Date: 5/26/2016

Lab ID: 1605C89-013

Matrix: AQUEOUS

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	89.7	0	70-130		%Rec	100	6/6/2016 10:53:00 PM	R34723
Surr: Toluene-d8	99.7	0	70-130		%Rec	100	6/6/2016 10:53:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-015

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/1/2016 9:33:49 PM	A34615
Surr: BFB	86.0	0	66.4-120		%Rec	1	6/1/2016 9:33:49 PM	A34615
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Toluene	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Naphthalene	ND	0.093	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Acetone	47	4.9	10		µg/L	1	6/6/2016 11:17:00 PM	R34723
Bromobenzene	ND	0.098	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Bromoform	ND	0.10	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Bromomethane	ND	0.78	3.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
2-Butanone	ND	0.74	10		µg/L	1	6/6/2016 11:17:00 PM	R34723
Carbon disulfide	ND	0.60	10		µg/L	1	6/6/2016 11:17:00 PM	R34723
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Chlorobenzene	2.8	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Chloroethane	ND	0.19	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Chloroform	ND	0.089	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Chloromethane	ND	0.21	3.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Dibromomethane	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605C89

Date Reported: 7/8/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605C89-015

Matrix: TRIP BLANK

Received Date: 5/27/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
2-Hexanone	ND	0.84	10		µg/L	1	6/6/2016 11:17:00 PM	R34723
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/6/2016 11:17:00 PM	R34723
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Styrene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/6/2016 11:17:00 PM	R34723
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/6/2016 11:17:00 PM	R34723
Surr: 1,2-Dichloroethane-d4	89.9	0	70-130		%Rec	1	6/6/2016 11:17:00 PM	R34723
Surr: 4-Bromofluorobenzene	99.0	0	70-130		%Rec	1	6/6/2016 11:17:00 PM	R34723
Surr: Dibromofluoromethane	88.3	0	70-130		%Rec	1	6/6/2016 11:17:00 PM	R34723
Surr: Toluene-d8	98.6	0	70-130		%Rec	1	6/6/2016 11:17:00 PM	R34723

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160602006
Project Name: 1605C89

Analytical Results Report

Sample Number	160602006-001	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-001G / NDD-6-GW			Sampling Time	2:15 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0156	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-002	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-002A / NDD-6-GW FILTERED			Sampling Time	2:15 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.0158	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-003	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-004G / NDD-4-GW			Sampling Time	3:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0176	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-004	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-005A / NDD-4-GW FILTERED			Sampling Time	3:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.0176	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-005	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-006G / NDD-11-GW			Sampling Time	4:15 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.00758	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	J

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.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160602006
Project Name: 1605C89

Analytical Results Report

Sample Number	160602006-006	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-007A / NDD-11-GW FILTERED			Sampling Time	4:15 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.00750	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	J

Sample Number	160602006-007	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-008G / NDD-16-GW			Sampling Time	5:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-008	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-009A / NDD-16-GW FILTERED			Sampling Time	5:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	ND	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-009	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-011G / EB052616			Sampling Time	7:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	

Sample Number	160602006-010	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM		
Client Sample ID	1605C89-012A / EB052616 FILTERED			Sampling Time	7:00 PM			
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	ND	mg/L	0.006	0.01	6/9/2016	MER	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.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160602006
Project Name: 1605C89

Analytical Results Report

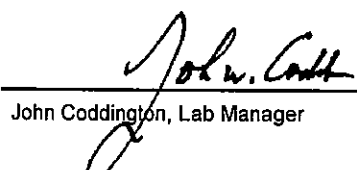
Sample Number	160602006-011	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM
Client Sample ID	1605C89-013G / DUP01-GW			Sampling Time		
Matrix	Water	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.00590	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	J

Sample Number	160602006-012	Sampling Date	5/26/2016	Date/Time Received	6/1/2016	1:25 PM
Client Sample ID	1605C89-014A / DUP01-GW FILTERED			Sampling Time		
Matrix	Water	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.00838	mg/L	0.006	0.01	6/9/2016	MER	EPA 335.4	J

Authorized Signature


John Coddington, Lab Manager

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.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160602006
Project Name: 1605C89

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.508	mg/L	0.5	101.6	90-110	6/9/2016	6/9/2016
Dissolved Cyanide	0.508	mg/L	0.5	101.6	90-110	6/9/2016	6/9/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160602006-001A	Dissolved Cyanide	0.0156	0.486	mg/L	0.5	94.1	90-110	6/9/2016	6/9/2016
160602006-001	Cyanide	0.0156	0.486	mg/L	0.5	94.1	90-110	6/9/2016	6/9/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Dissolved Cyanide	0.472	mg/L	0.5	91.3	2.9	0-20	6/9/2016	6/9/2016
Cyanide	0.472	mg/L	0.5	91.3	2.9	0-20	6/9/2016	6/9/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	6/9/2016	6/9/2016
Dissolved Cyanide	ND	mg/L	0.01	6/9/2016	6/9/2016

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:C595; MT:Cert0095; FL(NELAP): E871099

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup**Project:** North Drainage Ditch

Sample ID MB-B	SampType: MBLK	TestCode: EPA Method 200.7: Metals
Client ID: PBW	Batch ID: B34614	RunNo: 34614
Prep Date:	Analysis Date: 6/1/2016	SeqNo: 1067279 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 LCS-B	SampType: LCS	TestCode: EPA Method 200.7: Metals
Client ID: LCSW	Batch ID: B34614	RunNo: 34614
Prep Date:	Analysis Date: 6/1/2016	SeqNo: 1067280 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	98.7	85	115
Beryllium	0.52	0.0020	0.5000	0	103	85	115
Cadmium	0.50	0.0020	0.5000	0	100	85	115
Chromium	0.48	0.0060	0.5000	0	96.4	85	115
Cobalt	0.47	0.0060	0.5000	0	93.9	85	115
Iron	0.49	0.020	0.5000	0	98.1	85	115
Manganese	0.49	0.0020	0.5000	0	97.3	85	115
Nickel	0.47	0.010	0.5000	0	93.1	85	115
Silver	0.10	0.0050	0.1000	0	103	85	115
Vanadium	0.52	0.050	0.5000	0	104	85	115
Zinc	0.48	0.010	0.5000	0	95.2	85	115

Sample ID LLCS-B	SampType: LCSLL	TestCode: EPA Method 200.7: Metals
Client ID: BatchQC	Batch ID: B34614	RunNo: 34614
Prep Date:	Analysis Date: 6/1/2016	SeqNo: 1067281 Units: mg/L
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual

Barium	0.0021	0.0020	0.002000	0	106	50	150	
Beryllium	0.0021	0.0020	0.002000	0	104	50	150	
Cadmium	0.0020	0.0020	0.002000	0	99.0	50	150	J
Chromium	0.0065	0.0060	0.006000	0	108	50	150	
Cobalt	0.0060	0.0060	0.006000	0	101	50	150	
Iron	0.020	0.020	0.02000	0	98.6	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID LLLCS-B	SampType: LCSLL			TestCode: EPA Method 200.7: Metals						
Client ID: BatchQC	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067281		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0021	0.0020	0.002000	0	105	50	150			
Nickel	0.0050	0.010	0.005000	0	101	50	150			J
Silver	0.0049	0.0050	0.005000	0	97.4	50	150			J
Vanadium	0.010	0.050	0.01000	0	101	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Sample ID 1605C89-011EMS	SampType: MS			TestCode: EPA Method 200.7: Metals						
Client ID: EB052616	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067411		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	97.4	70	130			
Beryllium	0.51	0.0020	0.5000	0	103	70	130			
Cadmium	0.51	0.0020	0.5000	0	102	70	130			
Chromium	0.48	0.0060	0.5000	0	96.1	70	130			
Cobalt	0.47	0.0060	0.5000	0	93.3	70	130			
Iron	0.48	0.020	0.5000	0	95.7	70	130			
Manganese	0.48	0.0020	0.5000	0	96.6	70	130			
Nickel	0.47	0.010	0.5000	0	94.0	70	130			
Silver	0.10	0.0050	0.1000	0	103	70	130			
Vanadium	0.51	0.050	0.5000	0	103	70	130			
Zinc	0.48	0.010	0.5000	0	95.0	70	130			

Sample ID 1605C89-011EMSD	SampType: MSD			TestCode: EPA Method 200.7: Metals						
Client ID: EB052616	Batch ID: B34614			RunNo: 34614						
Prep Date:	Analysis Date: 6/1/2016			SeqNo: 1067412		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	97.2	70	130	0.181	20	
Beryllium	0.51	0.0020	0.5000	0	102	70	130	0.692	20	
Cadmium	0.51	0.0020	0.5000	0	102	70	130	0.172	20	
Chromium	0.48	0.0060	0.5000	0	95.9	70	130	0.260	20	
Cobalt	0.46	0.0060	0.5000	0	93.0	70	130	0.397	20	
Iron	0.48	0.020	0.5000	0	95.4	70	130	0.306	20	
Manganese	0.48	0.0020	0.5000	0	96.1	70	130	0.504	20	
Nickel	0.47	0.010	0.5000	0	93.6	70	130	0.493	20	
Silver	0.10	0.0050	0.1000	0	102	70	130	0.962	20	
Vanadium	0.51	0.050	0.5000	0	102	70	130	0.545	20	
Zinc	0.47	0.010	0.5000	0	95.0	70	130	0.0505	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB-25653		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069483		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	LCS-25653		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069487		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	94.8	85	115			
Beryllium	0.50	0.0020	0.5000	0	101	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.1	85	115			
Chromium	0.47	0.0060	0.5000	0	94.7	85	115			
Cobalt	0.46	0.0060	0.5000	0	92.3	85	115			
Iron	0.47	0.020	0.5000	0	94.6	85	115			
Manganese	0.47	0.0020	0.5000	0	94.1	85	115			
Nickel	0.46	0.010	0.5000	0	91.6	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			
Vanadium	0.50	0.050	0.5000	0	100	85	115			
Zinc	0.47	0.010	0.5000	0	94.0	85	115			

Sample ID	LLLCS-25653		SampType: LCSLL		TestCode: EPA Method 200.7: Metals					
Client ID:	BatchQC		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069488		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.0018	0.0020	0.002000	0	92.0	50	150			J
Beryllium	0.0023	0.0020	0.002000	0	117	50	150			
Cadmium	0.0021	0.0020	0.002000	0	104	50	150			
Chromium	0.0062	0.0060	0.006000	0	103	50	150			
Cobalt	0.0061	0.0060	0.006000	0	102	50	150			
Iron	0.027	0.020	0.02000	0	136	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	LLLCS-25653		SampType:	LCSLL		TestCode:	EPA Method 200.7: Metals			
Client ID:	BatchQC		Batch ID:	25653		RunNo:	34669			
Prep Date:	6/2/2016		Analysis Date:	6/3/2016		SeqNo:	1069488	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0027	0.0020	0.002000	0	136	50	150			
Nickel	0.0051	0.010	0.005000	0	101	50	150			J
Silver	0.0052	0.0050	0.005000	0	104	50	150			
Vanadium	0.010	0.050	0.01000	0	104	50	150			J
Zinc	0.0062	0.010	0.005000	0	123	50	150			J

Sample ID	1605C89-001EMS		SampType:	MS		TestCode:	EPA Method 200.7: Metals			
Client ID:	NDD-6-GW		Batch ID:	25653		RunNo:	34669			
Prep Date:	6/2/2016		Analysis Date:	6/3/2016		SeqNo:	1069751	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.50	0.0020	0.5000	0.001120	99.2	70	130			
Cadmium	0.48	0.0020	0.5000	0	96.1	70	130			
Chromium	0.47	0.0060	0.5000	0.006470	92.4	70	130			
Cobalt	0.45	0.0060	0.5000	0.01546	87.6	70	130			
Nickel	0.50	0.010	0.5000	0.06492	87.0	70	130			
Silver	0.10	0.0050	0.1000	0	102	70	130			
Vanadium	0.51	0.050	0.5000	0.01775	98.9	70	130			
Zinc	0.47	0.010	0.5000	0.02400	89.2	70	130			

Sample ID	1605C89-001EMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Metals			
Client ID:	NDD-6-GW		Batch ID:	25653		RunNo:	34669			
Prep Date:	6/2/2016		Analysis Date:	6/3/2016		SeqNo:	1069752	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.49	0.0020	0.5000	0.001120	98.1	70	130	1.16	20	
Cadmium	0.48	0.0020	0.5000	0	96.0	70	130	0.144	20	
Chromium	0.47	0.0060	0.5000	0.006470	92.1	70	130	0.308	20	
Cobalt	0.45	0.0060	0.5000	0.01546	87.2	70	130	0.460	20	
Nickel	0.50	0.010	0.5000	0.06492	86.4	70	130	0.636	20	
Silver	0.10	0.0050	0.1000	0	101	70	130	0.354	20	
Vanadium	0.51	0.050	0.5000	0.01775	98.7	70	130	0.219	20	
Zinc	0.47	0.010	0.5000	0.02400	88.5	70	130	0.788	20	

Sample ID	1605C89-001EMS		SampType:	MS		TestCode:	EPA Method 200.7: Metals			
Client ID:	NDD-6-GW		Batch ID:	25653		RunNo:	34669			
Prep Date:	6/2/2016		Analysis Date:	6/3/2016		SeqNo:	1069754	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	3.7	0.010	0.5000	3.230	95.4	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605C89-001EMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	NDD-6-GW		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069755		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	3.7	0.010	0.5000	3.230	92.0	70	130	0.456	20	

Sample ID	1605C89-004EMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	NDD-4-GW		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069757		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.41	0.0020	0.5000	0.01919	78.4	70	130			
Cadmium	0.40	0.0020	0.5000	0	79.9	70	130			
Silver	0.085	0.0050	0.1000	0	85.5	70	130			

Sample ID	1605C89-004EMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	NDD-4-GW		Batch ID: 25653		RunNo: 34669					
Prep Date:	6/2/2016		Analysis Date: 6/3/2016		SeqNo: 1069758		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.42	0.0020	0.5000	0.01919	79.6	70	130	1.38	20	
Cadmium	0.40	0.0020	0.5000	0	80.6	70	130	0.802	20	
Silver	0.086	0.0050	0.1000	0	86.4	70	130	1.02	20	

Sample ID	1605C89-004EMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	NDD-4-GW		Batch ID: 25653		RunNo: 34764					
Prep Date:	6/2/2016		Analysis Date: 6/8/2016		SeqNo: 1072691		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.52	0.030	0.5000	0.05955	92.5	70	130			
Cobalt	0.56	0.030	0.5000	0.08590	93.9	70	130			
Nickel	0.79	0.050	0.5000	0.3037	97.0	70	130			
Vanadium	0.45	0.25	0.5000	0.07720	73.7	70	130			
Zinc	0.67	0.050	0.5000	0.2088	91.4	70	130			

Sample ID	1605C89-004EMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	NDD-4-GW		Batch ID: 25653		RunNo: 34764					
Prep Date:	6/2/2016		Analysis Date: 6/8/2016		SeqNo: 1072692		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.50	0.030	0.5000	0.05955	87.6	70	130	4.74	20	
Cobalt	0.54	0.030	0.5000	0.08590	89.9	70	130	3.72	20	
Nickel	0.77	0.050	0.5000	0.3037	93.0	70	130	2.58	20	
Vanadium	0.43	0.25	0.5000	0.07720	70.0	70	130	4.15	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605C89-004EMSD			SampType:	MSD		TestCode:	EPA Method 200.7: Metals			
Client ID:	NDD-4-GW			Batch ID:	25653		RunNo:	34764			
Prep Date:	6/2/2016			Analysis Date:	6/8/2016		SeqNo:	1072692		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Zinc	0.64	0.050	0.5000	0.2088	85.2	70	130	4.74	20		

Sample ID	MB-D	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: D34764			RunNo: 34764					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073477		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								

Sample ID	LCS-D		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: D34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073478		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	91.8	85	115			
Manganese	0.47	0.0020	0.5000	0	93.1	85	115			

Sample ID	LLLCS-D		SampType: LCSLL		TestCode: EPA Method 200.7: Metals					
Client ID:	BatchQC		Batch ID: D34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073479		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.022	0.020	0.02000	0	109	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	B34669	RunNo:	34669					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1069477	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	0.00033	0.0020								J
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	LCS-B	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B34669	RunNo:	34669					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1069478	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	96.2	85	115			
Beryllium	0.50	0.0020	0.5000	0	99.0	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.5	85	115			
Chromium	0.47	0.0060	0.5000	0	94.9	85	115			
Cobalt	0.46	0.0060	0.5000	0	91.6	85	115			
Iron	0.48	0.020	0.5000	0	96.5	85	115			
Manganese	0.47	0.0020	0.5000	0	94.4	85	115			
Nickel	0.45	0.010	0.5000	0	90.9	85	115			
Silver	0.099	0.0050	0.1000	0	99.4	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.47	0.010	0.5000	0	93.1	85	115			

Sample ID	LLCS-B	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	B34669	RunNo:	34669					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1069479	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0016	0.0020	0.002000	0	82.0	50	150			J
Beryllium	0.0021	0.0020	0.002000	0	103	50	150			
Cadmium	0.0021	0.0020	0.002000	0	106	50	150			
Chromium	0.0066	0.0060	0.006000	0	110	50	150			
Cobalt	0.0059	0.0060	0.006000	0	98.0	50	150			J
Iron	0.021	0.020	0.02000	0	103	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B34669		RunNo: 34669					
Prep Date:			Analysis Date: 6/3/2016		SeqNo: 1069479		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	100	50	150			
Nickel	0.0054	0.010	0.005000	0	108	50	150			J
Silver	0.0045	0.0050	0.005000	0	90.0	50	150			J
Vanadium	0.0096	0.050	0.01000	0	96.4	50	150			J
Zinc	0.0054	0.010	0.005000	0	107	50	150			J

Sample ID	MB-B		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: B34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1072612		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Manganese	ND	0.0020								

Sample ID	LCS-B		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: B34764			RunNo: 34764				
Prep Date:			Analysis Date: 6/8/2016			SeqNo: 1072613		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	98.3	85	115			
Manganese	0.49	0.0020	0.5000	0	98.0	85	115			

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1072614		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	114	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			

Sample ID	MB-D	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: D34764			RunNo: 34764					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073285		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	LCS-D		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: D34764			RunNo: 34764				
Prep Date:			Analysis Date: 6/8/2016			SeqNo: 1073286		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	91.8	85	115			
Manganese	0.47	0.0020	0.5000	0	93.1	85	115			

Sample ID	LLCS-D		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: D34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073287		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.022	0.020	0.02000	0	109	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068640		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.023	0.0010	0.02500	0	92.2	85	115			
Arsenic	0.023	0.0010	0.02500	0	93.2	85	115			
Lead	0.012	0.00050	0.01250	0	95.7	85	115			
Selenium	0.025	0.0010	0.02500	0	99.8	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Metals						
Client ID: BatchQC	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068643		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00088	0.0010	0.001000	0	88.3	50	150			J
Arsenic	0.00096	0.0010	0.001000	0	95.5	50	150			J
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Selenium	0.0010	0.0010	0.001000	0	101	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: B34651			RunNo: 34651						
Prep Date:	Analysis Date: 6/2/2016			SeqNo: 1068644		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 MB-25653	SampType: MBLK			TestCode: EPA 200.8: Metals						
Client ID: PBW	Batch ID: 25653			RunNo: 34708						
Prep Date: 6/2/2016	Analysis Date: 6/6/2016			SeqNo: 1070657		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	0.00017	0.00050								J
Selenium	ND	0.0010								

Sample ID MSLCS-25653	SampType: LCS			TestCode: EPA 200.8: Metals						
Client ID: LCSW	Batch ID: 25653			RunNo: 34708						
Prep Date: 6/2/2016	Analysis Date: 6/6/2016			SeqNo: 1070659		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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MSLCS-25653		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: 25653		RunNo: 34708					
Prep Date:	6/2/2016		Analysis Date: 6/6/2016		SeqNo: 1070659		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	85	115			
Arsenic	0.025	0.0010	0.02500	0	98.3	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			
Selenium	0.024	0.0010	0.02500	0	97.8	85	115			

Sample ID	MSLLCS-25653		SampType: LCSLL		TestCode: EPA 200.8: Metals					
Client ID:	BatchQC		Batch ID: 25653		RunNo: 34708					
Prep Date:	6/2/2016		Analysis Date: 6/6/2016		SeqNo: 1070661		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00057	0.0010	0.001000	0	56.9	50	150			J
Arsenic	0.00097	0.0010	0.001000	0	97.4	50	150			J
Lead	0.00054	0.00050	0.0005000	0	107	50	150			
Selenium	0.00082	0.0010	0.001000	0	82.4	50	150			J

Sample ID	1605C89-006EMSL			SampType:	MSLL		TestCode:	EPA 200.8: Metals				
Client ID:	NDD-11-GW			Batch ID:	25653		RunNo:	34708				
Prep Date:	6/2/2016			Analysis Date:	6/6/2016		SeqNo:	1070671			Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Arsenic	0.043	0.0010	0.02500	0.02316	80.7	70	130					

Sample ID	1605C89-008EMSDL			SampType:	MSDLL		TestCode:	EPA 200.8: Metals				
Client ID:	NDD-16-GW			Batch ID:	25653		RunNo:	34708				
Prep Date:	6/2/2016			Analysis Date:	6/6/2016		SeqNo:	1070673			Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Lead	0.022	0.00050	0.01250	0.007947	110	70	130	0.192	20			

Sample ID	1605C89-008EMSL		SampType:	MSLL		TestCode:	EPA 200.8: Metals				
Client ID:	NDD-16-GW		Batch ID:	25653		RunNo:	34708				
Prep Date:	6/2/2016		Analysis Date:	6/6/2016		SeqNo:	1070674		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.022	0.00050	0.01250	0.007947	109	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605C89-006EMSL			SampType:	MSLL		TestCode:	EPA 200.8: Metals			
Client ID:	NDD-11-GW		Batch ID:	25653		RunNo:	34756				
Prep Date:	6/2/2016		Analysis Date:	6/7/2016		SeqNo:	1072173		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.037	0.0025	0.01250	0.02352	106	70	130				

Sample ID	1605C89-008EMSDL			SampType:	MSDLL		TestCode:	EPA 200.8: Metals			
Client ID:	NDD-16-GW		Batch ID:	25653		RunNo:	34803				
Prep Date:	6/2/2016		Analysis Date:	6/9/2016		SeqNo:	1074006		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Antimony	0.019	0.0010	0.02500	0	75.8	70	130	0.503	20		

Sample ID	1605C89-008EMSL			SampType:	MSLL		TestCode:	EPA 200.8: Metals			
Client ID:	NDD-16-GW			Batch ID:	25653		RunNo:	34803			
Prep Date:	6/2/2016			Analysis Date:	6/9/2016		SeqNo:	1074007		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Antimony	0.019	0.0010	0.02500	0	76.2	70	130				

Sample ID	MB-25731		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: 25731		RunNo: 34803					
Prep Date:	6/8/2016		Analysis Date: 6/9/2016		SeqNo: 1074033		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								

Sample ID	MSLCS-25731		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: 25731		RunNo: 34803					
Prep Date:	6/8/2016		Analysis Date: 6/9/2016		SeqNo: 1074035		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			

Sample ID	MSLLCS-25731		SampType: LCSLL		TestCode: EPA 200.8: Metals					
Client ID:	BatchQC		Batch ID: 25731		RunNo: 34803					
Prep Date:	6/8/2016		Analysis Date: 6/9/2016		SeqNo: 1074037		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00093	0.0010	0.001000	0	92.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605C89-006EMSL	SampType:	MSLL	TestCode:	EPA 200.8: Metals					
Client ID:	NDD-11-GW	Batch ID:	25653	RunNo:	34803					
Prep Date:	6/2/2016	Analysis Date:	6/9/2016	SeqNo:	1074454	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0041	0.0050	0.02500	0	16.3	70	130			JS

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34787		RunNo: 34787					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073576		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	96.7	85	115			
Arsenic	0.024	0.0010	0.02500	0	97.6	85	115			
Lead	0.012	0.00050	0.01250	0	97.9	85	115			
Selenium	0.024	0.0010	0.02500	0	97.8	85	115			

Sample ID	LLLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: A34787			RunNo: 34787					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073577		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00096	0.0010	0.001000	0	95.6	50	150			J
Arsenic	0.0010	0.0010	0.001000	0	103	50	150			
Lead	0.00053	0.00050	0.0005000	0	105	50	150			
Selenium	0.0011	0.0010	0.001000	0	105	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A34787			RunNo: 34787					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073578		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	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34821		RunNo: 34821					
Prep Date:			Analysis Date: 6/9/2016		SeqNo: 1074620		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	96.8	85	115			
Selenium	0.024	0.0010	0.02500	0	97.6	85	115			

Sample ID	LLLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: B34821			RunNo: 34821					
Prep Date:		Analysis Date: 6/9/2016			SeqNo: 1074621		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	99.9	50	150			J
Selenium	0.00098	0.0010	0.001000	0	97.7	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	B34821	RunNo:	34821					
Prep Date:		Analysis Date:	6/9/2016	SeqNo:	1074622	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	A34855	RunNo:	34855					
Prep Date:		Analysis Date:	6/10/2016	SeqNo:	1076361	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.025	0.0010	0.02500	0	98.4	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A34855	RunNo:	34855					
Prep Date:		Analysis Date:	6/10/2016	SeqNo:	1076362	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.0010	0.0010	0.001000	0	99.9	50	150			J

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	A34855	RunNo:	34855					
Prep Date:		Analysis Date:	6/10/2016	SeqNo:	1076364	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB-25649	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25649	RunNo:	34700					
Prep Date:	6/2/2016	Analysis Date:	6/3/2016	SeqNo:	1070462	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25649	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25649	RunNo:	34700					
Prep Date:	6/2/2016	Analysis Date:	6/3/2016	SeqNo:	1070463	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	98.4	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34562	RunNo:	34562					
Prep Date:		Analysis Date:	5/27/2016	SeqNo:	1065762	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:	R34562	RunNo:	34562					
Prep Date:		Analysis Date:	5/27/2016	SeqNo:	1065763	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	104	90	110			
Chloride	4.8	0.50	5.000	0	95.1	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	A34634	RunNo:	34634					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1068317	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:	A34634	RunNo:	34634					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1068318	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605C89-001CMS	SampType:	MS	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	NDD-6-GW	Batch ID:	25599	RunNo:	34590					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068112	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	9.6	1.0	5.000	4.339	105	59.4	160			
Surr: DNOP	0.48		0.5000		96.3	70	141			

Sample ID	1605C89-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	NDD-6-GW	Batch ID:	25599	RunNo:	34590					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068113	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	9.8	1.0	5.000	4.339	108	59.4	160	1.92	20	
Surr: DNOP	0.49		0.5000		97.7	70	141	0	0	

Sample ID	LCS-25599	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW	Batch ID:	25599	RunNo:	34590					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068119	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.7	1.0	5.000	0	93.0	71.3	139			
Surr: DNOP	0.54		0.5000		109	70	141			

Sample ID	MB-25599	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID:	25599	RunNo:	34590					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068120	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.0		1.000		102	70	141			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: A34615		RunNo: 34615							
Prep Date:	Analysis Date: 6/1/2016		SeqNo: 1067519		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	18		20.00		91.2	66.4	120			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: A34615		RunNo: 34615							
Prep Date:	Analysis Date: 6/1/2016		SeqNo: 1067520		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	94.9	80	120			
Surr: BFB	21		20.00		103	66.4	120			

Sample ID 1605C89-001BMS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: NDD-6-GW	Batch ID: A34615		RunNo: 34615							
Prep Date:	Analysis Date: 6/1/2016		SeqNo: 1067524		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	81	5.0	50.00	26.76	108	70	130			
Surr: BFB	2100		2000		104	66.4	120			

Sample ID 1605C89-001BMSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: NDD-6-GW	Batch ID: A34615		RunNo: 34615							
Prep Date:	Analysis Date: 6/1/2016		SeqNo: 1067525		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	75	5.0	50.00	26.76	95.9	70	130	7.77	20	
Surr: BFB	2100		2000		103	66.4	120	0	0	

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: A34660		RunNo: 34660							
Prep Date:	Analysis Date: 6/2/2016		SeqNo: 1069014		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	18		20.00		88.7	66.4	120			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: A34660		RunNo: 34660							
Prep Date:	Analysis Date: 6/2/2016		SeqNo: 1069015		Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	20		20.00		101	66.4	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	B34677	RunNo:	34677					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1070400	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	18		20.00		89.4	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	B34677	RunNo:	34677					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1070401	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.5	80	120			
Surr: BFB	20		20.00		102	66.4	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	100ng LCS			SampType:	LCS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	LCSW			Batch ID:	R34723		RunNo:	34723			
Prep Date:				Analysis Date:	6/6/2016		SeqNo:	1071277	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	95.4	70	130				
Toluene	20	1.0	20.00	0	101	70	130				
Chlorobenzene	20	1.0	20.00	0	102	70	130				
1,1-Dichloroethene	18	1.0	20.00	0	88.0	70	130				
Trichloroethene (TCE)	18	1.0	20.00	0	91.5	70	130				
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.0	70	130				
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130				
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130				
Surr: Toluene-d8	10		10.00		101	70	130				

Sample ID	rb4	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34723			RunNo: 34723					
Prep Date:		Analysis Date: 6/6/2016			SeqNo: 1071278		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	0.094	2.0								J
1-Methylnaphthalene	0.26	4.0								J
2-Methylnaphthalene	0.32	4.0								J
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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	rb4	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R34723	RunNo:	34723					
Prep Date:		Analysis Date:	6/6/2016	SeqNo:	1071278	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	0.86	10								J
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	0.14	1.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID rb4	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R34723		RunNo: 34723							
Prep Date:	Analysis Date: 6/6/2016		SeqNo: 1071278		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	9.1		10.00		91.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.3		10.00		93.0	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID 1605c89-011amsd	SampType: MSD		TestCode: EPA Method 8260B: VOLATILES							
Client ID: EB052616	Batch ID: R34723		RunNo: 34723							
Prep Date:	Analysis Date: 6/6/2016		SeqNo: 1071289		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.1	70	130	2.29	20	
Toluene	19	1.0	20.00	0	95.8	70	130	3.42	20	
Chlorobenzene	19	1.0	20.00	0	96.6	70	130	3.87	20	
1,1-Dichloroethene	18	1.0	20.00	0	91.1	70	130	2.32	20	
Trichloroethene (TCE)	17	1.0	20.00	0	86.6	70	130	3.83	20	
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.9	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130	0	0	
Surr: Dibromofluoromethane	9.1		10.00		91.1	70	130	0	0	
Surr: Toluene-d8	9.9		10.00		98.9	70	130	0	0	

Sample ID 1605c89-011ams	SampType: MS		TestCode: EPA Method 8260B: VOLATILES							
Client ID: EB052616	Batch ID: R34723		RunNo: 34723							
Prep Date:	Analysis Date: 6/6/2016		SeqNo: 1075456		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.2	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Chlorobenzene	20	1.0	20.00	0	100	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.2	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.9		10.00		89.4	70	130			
Surr: Toluene-d8	9.9		10.00		99.4	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	mb-25618	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25618	RunNo:	34659					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068972	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	6.5	20								J
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	3.5	10								J
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	5.3	10								J
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	2.8	10								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	mb-25618	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25618	RunNo:	34659					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068972	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	140		200.0		71.2	15	123			
Surr: Phenol-d5	110		200.0		56.1	4.13	124			
Surr: 2,4,6-Tribromophenol	200		200.0		101	18.4	134			
Surr: Nitrobenzene-d5	98		100.0		97.7	28.8	134			
Surr: 2-Fluorobiphenyl	77		100.0		77.4	35.9	125			
Surr: 4-Terphenyl-d14	93		100.0		93.1	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605c89-001hms	SampType:	MS	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	NDD-6-GW	Batch ID:	25618	RunNo:	34659					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068982	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	84	10	100.0	0	84.3	27.6	123			
4-Chloro-3-methylphenol	160	10	200.0	0	81.4	29.3	126			
2-Chlorophenol	180	10	200.0	0	90.3	15	133			
1,4-Dichlorobenzene	68	10	100.0	0	67.9	17.6	127			
2,4-Dinitrotoluene	77	10	100.0	0	77.4	38.9	98.5			
N-Nitrosodi-n-propylamine	91	10	100.0	0	91.1	25.9	131			
4-Nitrophenol	40	10	200.0	0	20.0	15	102			
Pentachlorophenol	130	20	200.0	0	63.7	15	120			
Phenol	110	10	200.0	11.32	46.9	15	100			
Pyrene	90	10	100.0	0	89.7	22.8	126			
1,2,4-Trichlorobenzene	69	10	100.0	0	69.0	15	143			
Surr: 2-Fluorophenol	75		200.0		37.4	15	123			
Surr: Phenol-d5	78		200.0		38.8	4.13	124			
Surr: 2,4,6-Tribromophenol	150		200.0		75.3	18.4	134			
Surr: Nitrobenzene-d5	72		100.0		72.4	28.8	134			
Surr: 2-Fluorobiphenyl	72		100.0		72.4	35.9	125			
Surr: 4-Terphenyl-d14	70		100.0		69.9	15	146			

Sample ID	1605c89-001hmsd	SampType:	MSD	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	NDD-6-GW	Batch ID:	25618	RunNo:	34659					
Prep Date:	6/1/2016	Analysis Date:	6/2/2016	SeqNo:	1068983	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	79	10	100.0	0	79.4	27.6	123	5.99	31.3	
4-Chloro-3-methylphenol	150	10	200.0	0	77.3	29.3	126	5.15	29	
2-Chlorophenol	180	10	200.0	0	89.7	15	133	0.611	28.4	
1,4-Dichlorobenzene	68	10	100.0	0	68.4	17.6	127	0.851	28.2	
2,4-Dinitrotoluene	72	10	100.0	0	71.6	38.9	98.5	7.82	22.9	
N-Nitrosodi-n-propylamine	91	10	100.0	0	90.9	25.9	131	0.286	28.8	
4-Nitrophenol	30	10	200.0	0	15.2	15	102	27.3	41.5	
Pentachlorophenol	120	20	200.0	0	60.1	15	120	5.78	45.1	
Phenol	110	10	200.0	11.32	49.2	15	100	4.32	33.9	
Pyrene	92	10	100.0	0	92.2	22.8	126	2.81	33.6	
1,2,4-Trichlorobenzene	74	10	100.0	0	74.1	15	143	7.19	28.2	
Surr: 2-Fluorophenol	69		200.0		34.7	15	123	0	0	
Surr: Phenol-d5	83		200.0		41.5	4.13	124	0	0	
Surr: 2,4,6-Tribromophenol	170		200.0		84.1	18.4	134	0	0	
Surr: Nitrobenzene-d5	73		100.0		73.3	28.8	134	0	0	
Surr: 2-Fluorobiphenyl	76		100.0		76.4	35.9	125	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	1605c89-001hmsd		SampType:	MSD		TestCode:	EPA Method 8270C: Semivolatiles				
Client ID:	NDD-6-GW		Batch ID:	25618		RunNo:	34659				
Prep Date:	6/1/2016		Analysis Date:	6/2/2016		SeqNo:	1068983	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: 4-Terphenyl-d14	69		100.0		69.4	15	146	0	0		

Sample ID	lcs-25618		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25618		RunNo: 34771					
Prep Date:	6/1/2016		Analysis Date: 6/7/2016		SeqNo: 1072973		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	76	10	100.0	0	75.9	35	113			
4-Chloro-3-methylphenol	190	10	200.0	0	95.2	40.7	114			
2-Chlorophenol	180	10	200.0	0	88.1	37.6	113			
1,4-Dichlorobenzene	57	10	100.0	0	57.0	37.7	106			
2,4-Dinitrotoluene	86	10	100.0	0	86.5	37	91			
N-Nitrosodi-n-propylamine	86	10	100.0	0	86.2	45.4	105			
4-Nitrophenol	73	10	200.0	0	36.5	33.4	104			
Pentachlorophenol	130	20	200.0	0	65.8	29.5	94.9			
Phenol	110	10	200.0	0	54.2	30.6	119			
Pyrene	94	10	100.0	0	94.0	26.2	120			
1,2,4-Trichlorobenzene	68	10	100.0	0	67.8	39.9	125			
Surr: 2-Fluorophenol	110		200.0		54.9	15	123			
Surr: Phenol-d5	94		200.0		46.8	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		78.1	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		74.4	28.8	134			
Surr: 2-Fluorobiphenyl	65		100.0		64.9	35.9	125			
Surr: 4-Terphenyl-d14	66		100.0		66.1	15	146			

Sample ID	mb-25725		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 25725		RunNo: 34835					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1076233		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	94		200.0		47.2	15	123			
Surr: Phenol-d5	77		200.0		38.7	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		77.8	18.4	134			
Surr: Nitrobenzene-d5	63		100.0		63.0	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		59.2	35.9	125			
Surr: 4-Terphenyl-d14	58		100.0		58.2	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605C89

08-Jul-16

Client: Western Refining Southwest, Gallup

Project: North Drainage Ditch

Sample ID	lcs-25725		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25725		RunNo: 34835					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1076234		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		56.2	15	123			
Surr: Phenol-d5	93		200.0		46.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		87.4	18.4	134			
Surr: Nitrobenzene-d5	79		100.0		78.5	28.8	134			
Surr: 2-Fluorobiphenyl	77		100.0		77.1	35.9	125			
Surr: 4-Terphenyl-d14	61		100.0		60.6	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1605C89

RcptNo: 1

Received by/date: _____

~~A~~ 05/27/16

Logged By: **Anne Thorne**

5/27/2016 2:00:00 PM

Done Here

Completed By: **Anne Thorne**

5/27/2016

Done Home

Reviewed By:

[Signature]

05/27/10

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Client

Log In

4. Was an attempt made to cool the samples?	Yes ☒	No ☐	NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C	Yes ☒	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☒	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☒	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☒	No ☒	
9. Was preservative added to bottles?	Yes ☒	No ☒	NA ☐
10. VOA vials have zero headspace?	Yes ☒	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☒	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☒	No ☐	
13. Are matrices correctly identified on Chain of Custody?	Yes ☒	No ☐	
14. Is it clear what analyses were requested?	Yes ☒	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☒	No ☐	
- # of preserved bottles checked for pH: 3

Adjusted? ☒

Checked by: _____

Yes ☒ 
 Yes ☒

No ☐

No ☒

No ☒ 25

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

Checked by: *as*

Special Handling (if applicable)

16. 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:			

17. Additional remarks: For metals analysis: added 1 mL HNO_3 to -004E for acceptable pH.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3	Good	Yes			

5/27 @ 1610
AJ

A 3x3 grid with a central gray square and four black squares at the corners.

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 + TPH (Gas only)
 TPH 8015B (GRO / DRO / MRO)
 TPH (Method 418.1)
 EDB (Method 504.1)
 PAH's (8310 or 8270 SIMS)
 CYANIDE
 PCRA 8 Metals
 100% / 1/500
 Anions (F⁻, Cl⁻, NO₃⁻, PO₄⁻, SO₄⁻)
 8081 Pesticides / 8082 PCB's
 8260B (VOA)
 8270 (Semi-VOA)
 Metals (Total / Dissolv
 100% / 1/500
 (SEE ATTACHED LIST)
 GEN CHEM
 (SEE ATTACHED LIST)
 Air Bubbles (Y or N)

mail or Fax#: **ED. RIEGE @WNR.COM**

VQC Package:

Standard ☒ Level 4 (Full Validation)

credit

NELAP ☐ Other _____

EDD (Type) **EXCEL**

[illegible]

ate: 7/16	Time: 1400	Relinquished by: 	Received by: 	Date 05/27/19	Time 400	Remarks:
ate:	Time:	Relinquished by:	Received by:	Date	Time	

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES
TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

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
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

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

October 25, 2016

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: 2016 3RD QTR (OW)

OrderNo.: 1609A26

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 9/18/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-55

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:15:00 AM

Lab ID: 1609A26-001

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	5.3	0.69	1.0		mg/L	1	9/20/2016 4:37:12 PM	27591
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/20/2016 4:37:12 PM	27591
Surr: DNOP	120	0	77.1-144		%Rec	1	9/20/2016 4:37:12 PM	27591
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.60	0.0013	0.0020		mg/L	1	10/13/2016 1:51:09 PM	C37932
Cadmium	ND	0.00075	0.0020		mg/L	1	10/13/2016 1:51:09 PM	C37932
Chromium	ND	0.0018	0.0060		mg/L	1	10/13/2016 1:51:09 PM	C37932
Copper	ND	0.0040	0.0060		mg/L	1	10/13/2016 1:51:09 PM	C37932
Iron	3.8	0.10	0.10	*	mg/L	5	10/13/2016 1:52:52 PM	C37932
Manganese	4.1	0.0016	0.010	*	mg/L	5	10/13/2016 1:52:52 PM	C37932
Silver	ND	0.0028	0.0050		mg/L	1	10/13/2016 1:51:09 PM	C37932
Zinc	0.0035	0.0028	0.010	J	mg/L	1	10/13/2016 1:51:09 PM	C37932
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	1.2	0.0040	0.010		mg/L	5	10/6/2016 5:44:15 PM	27884
Cadmium	ND	0.0015	0.0020		mg/L	1	10/5/2016 5:59:53 PM	27884
Chromium	0.0090	0.0027	0.0060		mg/L	1	10/5/2016 5:59:53 PM	27884
Copper	0.0094	0.0030	0.0060		mg/L	1	10/5/2016 5:59:53 PM	27884
Iron	13	0.40	0.40	*	mg/L	20	10/6/2016 5:51:54 PM	27884
Manganese	5.2	0.0055	0.040	*	mg/L	20	10/6/2016 5:51:54 PM	27884
Silver	ND	0.0015	0.0050		mg/L	1	10/6/2016 5:31:05 PM	27884
Zinc	0.066	0.0027	0.010		mg/L	1	10/5/2016 5:59:53 PM	27884
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0074	0.00014	0.0010		mg/L	1	9/30/2016 4:41:19 PM	C37623
Lead	0.00022	0.00017	0.00050	J	mg/L	1	9/30/2016 4:41:19 PM	C37623
Selenium	0.0082	0.00021	0.0010		mg/L	1	9/30/2016 4:41:19 PM	C37623
Uranium	0.0074	0.000051	0.00050		mg/L	1	9/30/2016 4:41:19 PM	C37623
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0078	0.0011	0.0050		mg/L	5	10/6/2016 6:07:55 PM	27884
Lead	0.024	0.000081	0.00050	*	mg/L	1	10/6/2016 5:52:48 PM	27884
Selenium	0.0038	0.00094	0.0050	J	mg/L	5	10/6/2016 6:07:55 PM	27884
Uranium	0.0094	0.00017	0.00050		mg/L	1	10/6/2016 5:52:48 PM	27884
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00011	0.000053	0.00020	J	mg/L	1	9/29/2016 1:28:58 PM	27776
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	12000	96	1000		µg/L	1000	9/22/2016 4:37:39 PM	W37409
Toluene	4600	120	1000		µg/L	1000	9/22/2016 4:37:39 PM	W37409

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-55

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:15:00 AM

Lab ID: 1609A26-001

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Ethylbenzene	950	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Methyl tert-butyl ether (MTBE)	1200	2.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2,4-Trimethylbenzene	880	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,3,5-Trimethylbenzene	280	1.2	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2-Dichloroethane (EDC)	5.6	1.2	10	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2-Dibromoethane (EDB)	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Naphthalene	120	0.93	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
1-Methylnaphthalene	30	2.0	40	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
2-Methylnaphthalene	45	1.6	40		µg/L	10	9/21/2016 4:44:20 PM	R37365
Acetone	ND	49	100		µg/L	10	9/21/2016 4:44:20 PM	R37365
Bromobenzene	ND	0.98	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Bromodichloromethane	ND	1.4	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Bromoform	ND	1.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Bromomethane	ND	7.8	30		µg/L	10	9/21/2016 4:44:20 PM	R37365
2-Butanone	ND	7.4	100		µg/L	10	9/21/2016 4:44:20 PM	R37365
Carbon disulfide	ND	6.0	100		µg/L	10	9/21/2016 4:44:20 PM	R37365
Carbon Tetrachloride	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Chlorobenzene	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Chloroethane	ND	1.9	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
Chloroform	ND	0.89	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Chloromethane	ND	2.1	30		µg/L	10	9/21/2016 4:44:20 PM	R37365
2-Chlorotoluene	ND	4.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
4-Chlorotoluene	ND	1.3	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
cis-1,2-DCE	ND	1.2	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
cis-1,3-Dichloropropene	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2-Dibromo-3-chloropropane	ND	2.3	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
Dibromochloromethane	ND	0.87	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Dibromomethane	ND	1.2	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2-Dichlorobenzene	ND	4.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,3-Dichlorobenzene	ND	1.4	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,4-Dichlorobenzene	ND	1.4	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Dichlorodifluoromethane	ND	3.6	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1-Dichloroethane	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1-Dichloroethene	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2-Dichloropropane	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,3-Dichloropropane	ND	1.6	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
2,2-Dichloropropane	ND	1.7	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1-Dichloropropene	ND	1.3	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Hexachlorobutadiene	ND	2.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: OW-55

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:15:00 AM

Lab ID: 1609A26-001

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
2-Hexanone	ND	8.4	100		µg/L	10	9/21/2016 4:44:20 PM	R37365
Isopropylbenzene	35	1.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
4-Isopropyltoluene	5.9	1.4	10	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
4-Methyl-2-pentanone	ND	4.3	100		µg/L	10	9/21/2016 4:44:20 PM	R37365
Methylene Chloride	ND	1.9	30		µg/L	10	9/21/2016 4:44:20 PM	R37365
n-Butylbenzene	17	1.6	30	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
n-Propylbenzene	120	1.3	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
sec-Butylbenzene	9.3	1.2	10	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
Styrene	4.1	1.1	10	J	µg/L	10	9/21/2016 4:44:20 PM	R37365
tert-Butylbenzene	ND	1.2	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1,1,2-Tetrachloroethane	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1,2,2-Tetrachloroethane	ND	1.3	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
Tetrachloroethene (PCE)	ND	1.5	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
trans-1,2-DCE	ND	4.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
trans-1,3-Dichloropropene	ND	1.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2,3-Trichlorobenzene	ND	1.1	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2,4-Trichlorobenzene	ND	1.3	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1,1-Trichloroethane	ND	0.91	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,1,2-Trichloroethane	ND	1.3	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Trichloroethene (TCE)	ND	1.8	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Trichlorofluoromethane	ND	2.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
1,2,3-Trichloropropane	ND	2.0	20		µg/L	10	9/21/2016 4:44:20 PM	R37365
Vinyl chloride	ND	2.0	10		µg/L	10	9/21/2016 4:44:20 PM	R37365
Xylenes, Total	4500	370	1500		µg/L	1000	9/22/2016 4:37:39 PM	W37409
Surr: 1,2-Dichloroethane-d4	89.7	0	70-130		%Rec	10	9/21/2016 4:44:20 PM	R37365
Surr: 4-Bromofluorobenzene	77.6	0	70-130		%Rec	10	9/21/2016 4:44:20 PM	R37365
Surr: Dibromofluoromethane	82.8	0	70-130		%Rec	10	9/21/2016 4:44:20 PM	R37365
Surr: Toluene-d8	93.9	0	70-130		%Rec	10	9/21/2016 4:44:20 PM	R37365
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	76	0.15	0.50		mg/L	10	9/21/2016 4:44:20 PM	W37365
Surr: BFB	103	0	70-130		%Rec	10	9/21/2016 4:44:20 PM	W37365

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: FB091616

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:30:00 AM

Lab ID: 1609A26-002

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/20/2016 5:41:47 PM	27591
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/20/2016 5:41:47 PM	27591
Surr: DNOP	127	0	77.1-144		%Rec	1	9/20/2016 5:41:47 PM	27591
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	ND	0.0013	0.0020		mg/L	1	10/13/2016 1:54:57 PM	C37932
Cadmium	ND	0.00075	0.0020		mg/L	1	10/13/2016 1:54:57 PM	C37932
Chromium	ND	0.0018	0.0060		mg/L	1	10/13/2016 1:54:57 PM	C37932
Copper	ND	0.0040	0.0060		mg/L	1	10/13/2016 1:54:57 PM	C37932
Iron	ND	0.020	0.020		mg/L	1	10/13/2016 1:54:57 PM	C37932
Manganese	ND	0.00032	0.0020		mg/L	1	10/13/2016 1:54:57 PM	C37932
Silver	ND	0.0028	0.0050		mg/L	1	10/13/2016 1:54:57 PM	C37932
Zinc	ND	0.0028	0.010		mg/L	1	10/13/2016 1:54:57 PM	C37932
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	ND	0.00079	0.0020		mg/L	1	10/5/2016 6:05:27 PM	27884
Cadmium	ND	0.0015	0.0020		mg/L	1	10/5/2016 6:05:27 PM	27884
Chromium	ND	0.0027	0.0060		mg/L	1	10/5/2016 6:05:27 PM	27884
Copper	ND	0.0030	0.0060		mg/L	1	10/5/2016 6:05:27 PM	27884
Iron	ND	0.020	0.020		mg/L	1	10/5/2016 6:05:27 PM	27884
Manganese	ND	0.00027	0.0020		mg/L	1	10/5/2016 6:05:27 PM	27884
Silver	ND	0.0015	0.0050		mg/L	1	10/5/2016 6:05:27 PM	27884
Zinc	ND	0.0027	0.010		mg/L	1	10/5/2016 6:05:27 PM	27884
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	ND	0.00014	0.0010		mg/L	1	9/30/2016 4:44:23 PM	C37623
Lead	ND	0.00017	0.00050		mg/L	1	9/30/2016 4:44:23 PM	C37623
Selenium	ND	0.00021	0.0010		mg/L	1	9/30/2016 4:44:23 PM	C37623
Uranium	ND	0.000051	0.00050		mg/L	1	9/30/2016 4:44:23 PM	C37623
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	ND	0.00021	0.0010		mg/L	1	10/6/2016 5:55:48 PM	27884
Lead	ND	0.000081	0.00050		mg/L	1	10/6/2016 5:55:48 PM	27884
Selenium	ND	0.00019	0.0010		mg/L	1	10/6/2016 5:55:48 PM	27884
Uranium	ND	0.00017	0.00050		mg/L	1	10/6/2016 5:55:48 PM	27884
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000097	0.000053	0.00020	J	mg/L	1	9/29/2016 1:31:03 PM	27776
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Toluene	0.37	0.12	1.0	J	µg/L	1	9/22/2016 11:20:14 AM	W37409

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: FB091616

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:30:00 AM

Lab ID: 1609A26-002

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Naphthalene	ND	0.093	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Acetone	7.6	4.9	10	J	µg/L	1	9/22/2016 11:20:14 AM	W37409
Bromobenzene	ND	0.098	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Bromoform	ND	0.10	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Bromomethane	ND	0.78	3.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
2-Butanone	0.91	0.74	10	J	µg/L	1	9/22/2016 11:20:14 AM	W37409
Carbon disulfide	ND	0.60	10		µg/L	1	9/22/2016 11:20:14 AM	W37409
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Chloroethane	ND	0.19	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Chloroform	ND	0.089	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Chloromethane	ND	0.21	3.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Dibromomethane	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: FB091616

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 10:30:00 AM

Lab ID: 1609A26-002

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
2-Hexanone	ND	0.84	10		µg/L	1	9/22/2016 11:20:14 AM	W37409
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/22/2016 11:20:14 AM	W37409
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Styrene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/22/2016 11:20:14 AM	W37409
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/22/2016 11:20:14 AM	W37409
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	9/22/2016 11:20:14 AM	W37409
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/22/2016 11:20:14 AM	W37409
Surr: Dibromofluoromethane	104	0	70-130		%Rec	1	9/22/2016 11:20:14 AM	W37409
Surr: Toluene-d8	101	0	70-130		%Rec	1	9/22/2016 11:20:14 AM	W37409
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	0.037	0.015	0.050	J	mg/L	1	9/21/2016 5:13:07 PM	W37365
Surr: BFB	100	0	70-130		%Rec	1	9/21/2016 5:13:07 PM	W37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-56

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 8:10:00 AM

Lab ID: 1609A26-003

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	0.77	0.69	1.0	J	mg/L	1	9/20/2016 6:03:27 PM	27591
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/20/2016 6:03:27 PM	27591
Surr: DNOP	128	0	77.1-144		%Rec	1	9/20/2016 6:03:27 PM	27591
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.36	0.0013	0.0020		mg/L	1	10/13/2016 1:58:42 PM	C37932
Cadmium	ND	0.00075	0.0020		mg/L	1	10/13/2016 1:58:42 PM	C37932
Chromium	ND	0.0018	0.0060		mg/L	1	10/13/2016 1:58:42 PM	C37932
Copper	0.0047	0.0040	0.0060	J	mg/L	1	10/13/2016 1:58:42 PM	C37932
Iron	0.078	0.020	0.020		mg/L	1	10/13/2016 1:58:42 PM	C37932
Manganese	0.39	0.00032	0.0020	*	mg/L	1	10/13/2016 1:58:42 PM	C37932
Silver	ND	0.0028	0.0050		mg/L	1	10/13/2016 1:58:42 PM	C37932
Zinc	0.011	0.0028	0.010		mg/L	1	10/13/2016 1:58:42 PM	C37932
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	0.37	0.00079	0.0020		mg/L	1	10/5/2016 6:11:17 PM	27884
Cadmium	ND	0.0015	0.0020		mg/L	1	10/5/2016 6:11:17 PM	27884
Chromium	ND	0.0027	0.0060		mg/L	1	10/5/2016 6:11:17 PM	27884
Copper	0.0049	0.0030	0.0060	J	mg/L	1	10/5/2016 6:11:17 PM	27884
Iron	0.33	0.020	0.020	*	mg/L	1	10/5/2016 6:11:17 PM	27884
Manganese	0.42	0.00027	0.0020	*	mg/L	1	10/5/2016 6:11:17 PM	27884
Silver	ND	0.0015	0.0050		mg/L	1	10/5/2016 6:11:17 PM	27884
Zinc	0.012	0.0027	0.010		mg/L	1	10/5/2016 6:11:17 PM	27884
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0049	0.00069	0.0050	J	mg/L	5	10/7/2016 6:19:29 PM	C37789
Lead	0.00046	0.00017	0.00050	J	mg/L	1	9/30/2016 4:53:38 PM	C37623
Selenium	0.0046	0.0042	0.020	J	mg/L	20	10/7/2016 6:22:33 PM	C37789
Uranium	0.023	0.000051	0.00050		mg/L	1	9/30/2016 4:53:38 PM	C37623
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0046	0.0021	0.010	J	mg/L	10	10/7/2016 11:02:58 AM	27884
Lead	0.0010	0.000081	0.00050		mg/L	1	10/6/2016 6:10:57 PM	27884
Selenium	0.0046	0.0019	0.010	J	mg/L	10	10/7/2016 11:02:58 AM	27884
Uranium	0.024	0.00087	0.0025		mg/L	5	10/7/2016 10:56:57 AM	27884
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00010	0.000053	0.00020	J	mg/L	1	9/29/2016 1:33:10 PM	27776
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	2.5	0.48	5.0	JD	µg/L	5	9/21/2016 6:39:35 PM	R37365
Toluene	0.92	0.59	5.0	JD	µg/L	5	9/21/2016 6:39:35 PM	R37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-56

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 8:10:00 AM

Lab ID: 1609A26-003

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Ethylbenzene	ND	0.56	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Methyl tert-butyl ether (MTBE)	150	1.1	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2,4-Trimethylbenzene	1.1	0.55	5.0	JD	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,3,5-Trimethylbenzene	ND	0.58	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2-Dichloroethane (EDC)	16	0.58	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2-Dibromoethane (EDB)	ND	0.56	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Naphthalene	ND	0.46	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1-Methylnaphthalene	ND	1.0	20	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
2-Methylnaphthalene	ND	0.79	20	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Acetone	ND	25	50	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Bromobenzene	ND	0.49	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Bromodichloromethane	ND	0.70	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Bromoform	ND	0.51	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Bromomethane	ND	3.9	15	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
2-Butanone	ND	3.7	50	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Carbon disulfide	ND	3.0	50	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Carbon Tetrachloride	ND	0.54	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Chlorobenzene	ND	0.57	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Chloroethane	ND	0.96	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Chloroform	ND	0.44	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Chloromethane	ND	1.1	15	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
2-Chlorotoluene	ND	2.0	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
4-Chlorotoluene	ND	0.64	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
cis-1,2-DCE	ND	0.62	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
cis-1,3-Dichloropropene	ND	0.53	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2-Dibromo-3-chloropropane	ND	1.2	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Dibromochloromethane	ND	0.43	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Dibromomethane	ND	0.60	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2-Dichlorobenzene	ND	2.0	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,3-Dichlorobenzene	ND	0.72	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,4-Dichlorobenzene	ND	0.71	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Dichlorodifluoromethane	ND	1.8	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1-Dichloroethane	ND	0.54	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1-Dichloroethene	ND	0.54	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2-Dichloropropane	ND	0.55	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,3-Dichloropropane	ND	0.78	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
2,2-Dichloropropane	ND	0.83	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1-Dichloropropene	ND	0.67	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Hexachlorobutadiene	ND	0.99	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-56

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 8:10:00 AM

Lab ID: 1609A26-003

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
2-Hexanone	ND	4.2	50	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Isopropylbenzene	1.1	0.52	5.0	JD	µg/L	5	9/21/2016 6:39:35 PM	R37365
4-Isopropyltoluene	ND	0.70	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
4-Methyl-2-pentanone	ND	2.1	50	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Methylene Chloride	ND	0.94	15	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
n-Butylbenzene	ND	0.80	15	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
n-Propylbenzene	ND	0.66	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
sec-Butylbenzene	ND	0.62	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Styrene	ND	0.55	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
tert-Butylbenzene	ND	0.58	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1,1,2-Tetrachloroethane	ND	0.56	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1,2,2-Tetrachloroethane	ND	0.64	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Tetrachloroethene (PCE)	ND	0.76	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
trans-1,2-DCE	ND	2.0	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
trans-1,3-Dichloropropene	ND	0.52	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2,3-Trichlorobenzene	ND	0.56	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2,4-Trichlorobenzene	ND	0.66	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1,1-Trichloroethane	ND	0.46	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,1,2-Trichloroethane	ND	0.64	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Trichloroethene (TCE)	ND	0.88	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Trichlorofluoromethane	ND	1.0	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
1,2,3-Trichloropropane	ND	1.0	10	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Vinyl chloride	ND	0.98	5.0	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Xylenes, Total	ND	1.8	7.5	D	µg/L	5	9/21/2016 6:39:35 PM	R37365
Surr: 1,2-Dichloroethane-d4	94.5	0	70-130	D	%Rec	5	9/21/2016 6:39:35 PM	R37365
Surr: 4-Bromofluorobenzene	99.3	0	70-130	D	%Rec	5	9/21/2016 6:39:35 PM	R37365
Surr: Dibromofluoromethane	94.9	0	70-130	D	%Rec	5	9/21/2016 6:39:35 PM	R37365
Surr: Toluene-d8	97.1	0	70-130	D	%Rec	5	9/21/2016 6:39:35 PM	R37365
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	1.2	0.075	0.25		mg/L	5	9/21/2016 6:39:35 PM	W37365
Surr: BFB	99.3	0	70-130		%Rec	5	9/21/2016 6:39:35 PM	W37365

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-54

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 9:40:00 AM

Lab ID: 1609A26-004

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	1.6	0.69	1.0		mg/L	1	9/20/2016 6:25:00 PM	27591
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/20/2016 6:25:00 PM	27591
Surr: DNOP	124	0	77.1-144		%Rec	1	9/20/2016 6:25:00 PM	27591
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.14	0.0013	0.0020		mg/L	1	10/13/2016 2:02:44 PM	C37932
Cadmium	ND	0.00075	0.0020		mg/L	1	10/13/2016 2:02:44 PM	C37932
Chromium	ND	0.0018	0.0060		mg/L	1	10/13/2016 2:02:44 PM	C37932
Copper	0.0088	0.0040	0.0060		mg/L	1	10/13/2016 2:02:44 PM	C37932
Iron	0.23	0.020	0.020		mg/L	1	10/13/2016 2:02:44 PM	C37932
Manganese	1.3	0.0016	0.010	*	mg/L	5	10/13/2016 2:04:44 PM	C37932
Silver	ND	0.0028	0.0050		mg/L	1	10/13/2016 2:02:44 PM	C37932
Zinc	0.0035	0.0028	0.010	J	mg/L	1	10/13/2016 2:02:44 PM	C37932
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	1.1	0.0040	0.010		mg/L	5	10/6/2016 5:53:56 PM	27884
Cadmium	ND	0.0015	0.0020		mg/L	1	10/5/2016 6:18:57 PM	27884
Chromium	0.013	0.0027	0.0060		mg/L	1	10/5/2016 6:18:57 PM	27884
Copper	0.032	0.0030	0.0060		mg/L	1	10/5/2016 6:18:57 PM	27884
Iron	11	0.40	0.40	*	mg/L	20	10/6/2016 5:55:45 PM	27884
Manganese	2.3	0.0014	0.010	*	mg/L	5	10/6/2016 5:53:56 PM	27884
Silver	ND	0.0015	0.0050		mg/L	1	10/5/2016 6:18:57 PM	27884
Zinc	0.036	0.0027	0.010		mg/L	1	10/5/2016 6:18:57 PM	27884
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0049	0.00069	0.0050	J	mg/L	5	10/7/2016 6:25:36 PM	C37789
Lead	0.0052	0.00017	0.00050		mg/L	1	9/30/2016 4:56:41 PM	C37623
Selenium	0.0068	0.0042	0.020	J	mg/L	20	10/7/2016 6:28:40 PM	C37789
Uranium	0.062	0.00026	0.0025	*	mg/L	5	10/7/2016 6:25:36 PM	C37789
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0057	0.0021	0.010	J	mg/L	10	10/7/2016 11:21:05 AM	27884
Lead	0.032	0.00041	0.0025	*	mg/L	5	10/7/2016 11:05:59 AM	27884
Selenium	0.0063	0.0019	0.010	J	mg/L	10	10/7/2016 11:21:05 AM	27884
Uranium	0.065	0.00087	0.0025	*	mg/L	5	10/7/2016 11:05:59 AM	27884
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00013	0.000053	0.00020	J	mg/L	1	9/29/2016 1:35:16 PM	27776
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	100	0.48	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Toluene	8.0	0.59	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-54

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 9:40:00 AM

Lab ID: 1609A26-004

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Ethylbenzene	29	0.56	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Methyl tert-butyl ether (MTBE)	2000	11	50		µg/L	50	9/22/2016 5:06:24 PM	W37409
1,2,4-Trimethylbenzene	15	0.55	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,3,5-Trimethylbenzene	6.5	0.58	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2-Dichloroethane (EDC)	ND	0.58	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2-Dibromoethane (EDB)	ND	0.56	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Naphthalene	4.2	0.46	10	J	µg/L	5	9/21/2016 7:08:24 PM	R37365
1-Methylnaphthalene	ND	1.0	20		µg/L	5	9/21/2016 7:08:24 PM	R37365
2-Methylnaphthalene	ND	0.79	20		µg/L	5	9/21/2016 7:08:24 PM	R37365
Acetone	ND	25	50		µg/L	5	9/21/2016 7:08:24 PM	R37365
Bromobenzene	ND	0.49	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Bromodichloromethane	ND	0.70	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Bromoform	ND	0.51	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Bromomethane	ND	3.9	15		µg/L	5	9/21/2016 7:08:24 PM	R37365
2-Butanone	ND	3.7	50		µg/L	5	9/21/2016 7:08:24 PM	R37365
Carbon disulfide	ND	3.0	50		µg/L	5	9/21/2016 7:08:24 PM	R37365
Carbon Tetrachloride	ND	0.54	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Chlorobenzene	ND	0.57	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Chloroethane	ND	0.96	10		µg/L	5	9/21/2016 7:08:24 PM	R37365
Chloroform	ND	0.44	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Chloromethane	ND	1.1	15		µg/L	5	9/21/2016 7:08:24 PM	R37365
2-Chlorotoluene	ND	2.0	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
4-Chlorotoluene	ND	0.64	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
cis-1,2-DCE	ND	0.62	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
cis-1,3-Dichloropropene	ND	0.53	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2-Dibromo-3-chloropropane	ND	1.2	10		µg/L	5	9/21/2016 7:08:24 PM	R37365
Dibromochloromethane	ND	0.43	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Dibromomethane	ND	0.60	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2-Dichlorobenzene	ND	2.0	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,3-Dichlorobenzene	ND	0.72	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,4-Dichlorobenzene	ND	0.71	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Dichlorodifluoromethane	ND	1.8	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1-Dichloroethane	ND	0.54	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1-Dichloroethene	ND	0.54	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2-Dichloropropane	ND	0.55	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,3-Dichloropropane	ND	0.78	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
2,2-Dichloropropane	ND	0.83	10		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1-Dichloropropene	ND	0.67	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Hexachlorobutadiene	ND	0.99	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-54

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016 9:40:00 AM

Lab ID: 1609A26-004

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
2-Hexanone	ND	4.2	50		µg/L	5	9/21/2016 7:08:24 PM	R37365
Isopropylbenzene	1.2	0.52	5.0	J	µg/L	5	9/21/2016 7:08:24 PM	R37365
4-Isopropyltoluene	ND	0.70	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
4-Methyl-2-pentanone	ND	2.1	50		µg/L	5	9/21/2016 7:08:24 PM	R37365
Methylene Chloride	ND	0.94	15		µg/L	5	9/21/2016 7:08:24 PM	R37365
n-Butylbenzene	ND	0.80	15		µg/L	5	9/21/2016 7:08:24 PM	R37365
n-Propylbenzene	3.7	0.66	5.0	J	µg/L	5	9/21/2016 7:08:24 PM	R37365
sec-Butylbenzene	1.7	0.62	5.0	J	µg/L	5	9/21/2016 7:08:24 PM	R37365
Styrene	ND	0.55	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
tert-Butylbenzene	ND	0.58	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1,1,2-Tetrachloroethane	ND	0.56	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1,2,2-Tetrachloroethane	ND	0.64	10		µg/L	5	9/21/2016 7:08:24 PM	R37365
Tetrachloroethene (PCE)	ND	0.76	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
trans-1,2-DCE	ND	2.0	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
trans-1,3-Dichloropropene	ND	0.52	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2,3-Trichlorobenzene	ND	0.56	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2,4-Trichlorobenzene	ND	0.66	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1,1-Trichloroethane	ND	0.46	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,1,2-Trichloroethane	ND	0.64	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Trichloroethene (TCE)	ND	0.88	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Trichlorofluoromethane	ND	1.0	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
1,2,3-Trichloropropane	ND	1.0	10		µg/L	5	9/21/2016 7:08:24 PM	R37365
Vinyl chloride	ND	0.98	5.0		µg/L	5	9/21/2016 7:08:24 PM	R37365
Xylenes, Total	28	1.8	7.5		µg/L	5	9/21/2016 7:08:24 PM	R37365
Surr: 1,2-Dichloroethane-d4	89.8	0	70-130		%Rec	5	9/21/2016 7:08:24 PM	R37365
Surr: 4-Bromofluorobenzene	95.3	0	70-130		%Rec	5	9/21/2016 7:08:24 PM	R37365
Surr: Dibromofluoromethane	86.0	0	70-130		%Rec	5	9/21/2016 7:08:24 PM	R37365
Surr: Toluene-d8	98.4	0	70-130		%Rec	5	9/21/2016 7:08:24 PM	R37365
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	3.2	0.075	0.25		mg/L	5	9/21/2016 7:08:24 PM	W37365
Surr: BFB	100	0	70-130		%Rec	5	9/21/2016 7:08:24 PM	W37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP06

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016

Lab ID: 1609A26-005

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	1.7	0.69	1.0		mg/L	1	9/20/2016 6:46:40 PM	27591
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/20/2016 6:46:40 PM	27591
Surr: DNOP	129	0	77.1-144		%Rec	1	9/20/2016 6:46:40 PM	27591
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.14	0.0013	0.0020		mg/L	1	10/13/2016 2:12:36 PM	C37932
Cadmium	ND	0.00075	0.0020		mg/L	1	10/13/2016 2:12:36 PM	C37932
Chromium	ND	0.0018	0.0060		mg/L	1	10/13/2016 2:12:36 PM	C37932
Copper	0.0093	0.0040	0.0060		mg/L	1	10/13/2016 2:12:36 PM	C37932
Iron	0.24	0.020	0.020		mg/L	1	10/13/2016 2:12:36 PM	C37932
Manganese	1.4	0.0016	0.010	*	mg/L	5	10/13/2016 2:14:41 PM	C37932
Silver	ND	0.0028	0.0050		mg/L	1	10/13/2016 2:12:36 PM	C37932
Zinc	0.0035	0.0028	0.010	J	mg/L	1	10/13/2016 2:12:36 PM	C37932
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	1.3	0.0040	0.010		mg/L	5	10/6/2016 5:57:44 PM	27884
Cadmium	ND	0.0015	0.0020		mg/L	1	10/5/2016 6:20:48 PM	27884
Chromium	0.017	0.0027	0.0060		mg/L	1	10/5/2016 6:20:48 PM	27884
Copper	0.036	0.0030	0.0060		mg/L	1	10/5/2016 6:20:48 PM	27884
Iron	14	0.40	0.40	*	mg/L	20	10/6/2016 6:05:16 PM	27884
Manganese	2.4	0.0014	0.010	*	mg/L	5	10/6/2016 5:57:44 PM	27884
Silver	ND	0.0015	0.0050		mg/L	1	10/5/2016 6:20:48 PM	27884
Zinc	0.039	0.0027	0.010		mg/L	1	10/5/2016 6:20:48 PM	27884
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0049	0.00069	0.0050	J	mg/L	5	10/7/2016 6:31:43 PM	C37789
Lead	0.0053	0.00017	0.00050		mg/L	1	9/30/2016 4:59:45 PM	C37623
Selenium	0.0083	0.0042	0.020	J	mg/L	20	10/7/2016 6:40:58 PM	C37789
Uranium	0.063	0.00026	0.0025	*	mg/L	5	10/7/2016 6:31:43 PM	C37789
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0058	0.0021	0.010	J	mg/L	10	10/7/2016 11:27:06 AM	27884
Lead	0.036	0.00041	0.0025	*	mg/L	5	10/7/2016 11:24:06 AM	27884
Selenium	0.0070	0.0019	0.010	J	mg/L	10	10/7/2016 11:27:06 AM	27884
Uranium	0.066	0.00087	0.0025	*	mg/L	5	10/7/2016 11:24:06 AM	27884
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00013	0.000053	0.00020	J	mg/L	1	9/29/2016 1:37:23 PM	27776
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	110	0.96	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Toluene	9.8	1.2	10	J	µg/L	10	9/21/2016 7:37:10 PM	R37365

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP06

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016

Lab ID: 1609A26-005

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Ethylbenzene	29	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Methyl tert-butyl ether (MTBE)	1900	21	100		µg/L	100	9/22/2016 5:35:14 PM	W37409
1,2,4-Trimethylbenzene	14	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,3,5-Trimethylbenzene	7.1	1.2	10	J	µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2-Dichloroethane (EDC)	ND	1.2	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2-Dibromoethane (EDB)	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Naphthalene	5.5	0.93	20	J	µg/L	10	9/21/2016 7:37:10 PM	R37365
1-Methylnaphthalene	ND	2.0	40		µg/L	10	9/21/2016 7:37:10 PM	R37365
2-Methylnaphthalene	ND	1.6	40		µg/L	10	9/21/2016 7:37:10 PM	R37365
Acetone	ND	49	100		µg/L	10	9/21/2016 7:37:10 PM	R37365
Bromobenzene	ND	0.98	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Bromodichloromethane	ND	1.4	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Bromoform	ND	1.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Bromomethane	ND	7.8	30		µg/L	10	9/21/2016 7:37:10 PM	R37365
2-Butanone	ND	7.4	100		µg/L	10	9/21/2016 7:37:10 PM	R37365
Carbon disulfide	ND	6.0	100		µg/L	10	9/21/2016 7:37:10 PM	R37365
Carbon Tetrachloride	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Chlorobenzene	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Chloroethane	ND	1.9	20		µg/L	10	9/21/2016 7:37:10 PM	R37365
Chloroform	ND	0.89	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Chloromethane	ND	2.1	30		µg/L	10	9/21/2016 7:37:10 PM	R37365
2-Chlorotoluene	ND	4.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
4-Chlorotoluene	ND	1.3	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
cis-1,2-DCE	ND	1.2	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
cis-1,3-Dichloropropene	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2-Dibromo-3-chloropropane	ND	2.3	20		µg/L	10	9/21/2016 7:37:10 PM	R37365
Dibromochloromethane	ND	0.87	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Dibromomethane	ND	1.2	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2-Dichlorobenzene	ND	4.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,3-Dichlorobenzene	ND	1.4	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,4-Dichlorobenzene	ND	1.4	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Dichlorodifluoromethane	ND	3.6	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1-Dichloroethane	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1-Dichloroethene	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2-Dichloropropane	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,3-Dichloropropane	ND	1.6	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
2,2-Dichloropropane	ND	1.7	20		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1-Dichloropropene	ND	1.3	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Hexachlorobutadiene	ND	2.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: DUP06

Project: 2016 3RD QTR (OW)

Collection Date: 9/16/2016

Lab ID: 1609A26-005

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
2-Hexanone	ND	8.4	100		µg/L	10	9/21/2016 7:37:10 PM	R37365
Isopropylbenzene	1.6	1.0	10	J	µg/L	10	9/21/2016 7:37:10 PM	R37365
4-Isopropyltoluene	ND	1.4	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
4-Methyl-2-pentanone	ND	4.3	100		µg/L	10	9/21/2016 7:37:10 PM	R37365
Methylene Chloride	ND	1.9	30		µg/L	10	9/21/2016 7:37:10 PM	R37365
n-Butylbenzene	ND	1.6	30		µg/L	10	9/21/2016 7:37:10 PM	R37365
n-Propylbenzene	3.8	1.3	10	J	µg/L	10	9/21/2016 7:37:10 PM	R37365
sec-Butylbenzene	2.6	1.2	10	J	µg/L	10	9/21/2016 7:37:10 PM	R37365
Styrene	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
tert-Butylbenzene	ND	1.2	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1,1,2-Tetrachloroethane	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1,2,2-Tetrachloroethane	ND	1.3	20		µg/L	10	9/21/2016 7:37:10 PM	R37365
Tetrachloroethene (PCE)	ND	1.5	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
trans-1,2-DCE	ND	4.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
trans-1,3-Dichloropropene	ND	1.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2,3-Trichlorobenzene	ND	1.1	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2,4-Trichlorobenzene	ND	1.3	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1,1-Trichloroethane	ND	0.91	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,1,2-Trichloroethane	ND	1.3	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Trichloroethene (TCE)	ND	1.8	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Trichlorofluoromethane	ND	2.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
1,2,3-Trichloropropane	ND	2.0	20		µg/L	10	9/21/2016 7:37:10 PM	R37365
Vinyl chloride	ND	2.0	10		µg/L	10	9/21/2016 7:37:10 PM	R37365
Xylenes, Total	31	3.7	15		µg/L	10	9/21/2016 7:37:10 PM	R37365
Surr: 1,2-Dichloroethane-d4	96.5	0	70-130		%Rec	10	9/21/2016 7:37:10 PM	R37365
Surr: 4-Bromofluorobenzene	95.4	0	70-130		%Rec	10	9/21/2016 7:37:10 PM	R37365
Surr: Dibromofluoromethane	90.5	0	70-130		%Rec	10	9/21/2016 7:37:10 PM	R37365
Surr: Toluene-d8	99.1	0	70-130		%Rec	10	9/21/2016 7:37:10 PM	R37365
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	3.4	0.15	0.50		mg/L	10	9/21/2016 7:37:10 PM	W37365
Surr: BFB	101	0	70-130		%Rec	10	9/21/2016 7:37:10 PM	W37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: TRIP BLANK

Project: 2016 3RD QTR (OW)

Collection Date:

Lab ID: 1609A26-006

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
Benzene	ND	0.096	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Toluene	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Naphthalene	ND	0.093	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Acetone	ND	4.9	10		µg/L	1	9/21/2016 8:05:54 PM	R37365
Bromobenzene	ND	0.098	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Bromoform	ND	0.10	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Bromomethane	ND	0.78	3.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
2-Butanone	ND	0.74	10		µg/L	1	9/21/2016 8:05:54 PM	R37365
Carbon disulfide	ND	0.60	10		µg/L	1	9/21/2016 8:05:54 PM	R37365
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Chloroethane	ND	0.19	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Chloroform	ND	0.089	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Chloromethane	ND	0.21	3.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Dibromomethane	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609A26

Date Reported: 10/25/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: TRIP BLANK

Project: 2016 3RD QTR (OW)

Collection Date:

Lab ID: 1609A26-006

Matrix: AQUEOUS

Received Date: 9/18/2016 2:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: AG	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
2-Hexanone	ND	0.84	10		µg/L	1	9/21/2016 8:05:54 PM	R37365
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/21/2016 8:05:54 PM	R37365
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Styrene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/21/2016 8:05:54 PM	R37365
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/21/2016 8:05:54 PM	R37365
Surr: 1,2-Dichloroethane-d4	96.9	0	70-130		%Rec	1	9/21/2016 8:05:54 PM	R37365
Surr: 4-Bromofluorobenzene	94.4	0	70-130		%Rec	1	9/21/2016 8:05:54 PM	R37365
Surr: Dibromofluoromethane	96.8	0	70-130		%Rec	1	9/21/2016 8:05:54 PM	R37365
Surr: Toluene-d8	99.8	0	70-130		%Rec	1	9/21/2016 8:05:54 PM	R37365
EPA METHOD 8015D: GASOLINE RANGE							Analyst: AG	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/21/2016 8:05:54 PM	W37365
Surr: BFB	96.8	0	70-130		%Rec	1	9/21/2016 8:05:54 PM	W37365

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	MB-C		SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	PBW		Batch ID:	C37932		RunNo:	37932			
Prep Date:			Analysis Date:	10/13/2016		SeqNo:	1181916	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LLCS-C		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	C37932		RunNo:	37932			
Prep Date:			Analysis Date:	10/13/2016		SeqNo:	1181917	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	116	50	150			
Cadmium	0.0020	0.0020	0.002000	0	102	50	150			
Chromium	0.0056	0.0060	0.006000	0	93.2	50	150			J
Manganese	0.0018	0.0020	0.002000	0	92.0	50	150			J
Silver	0.0046	0.0050	0.005000	0	91.4	50	150			J
Zinc	0.0051	0.010	0.005000	0	102	50	150			J

Sample ID	LCS-C		SampType:	LCS		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	LCSW		Batch ID:	C37932		RunNo:	37932			
Prep Date:			Analysis Date:	10/13/2016		SeqNo:	1181921	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	95.4	85	115			
Cadmium	0.49	0.0020	0.5000	0	97.6	85	115			
Chromium	0.48	0.0060	0.5000	0	95.2	85	115			
Copper	0.49	0.0060	0.5000	0	97.3	85	115			
Iron	0.48	0.020	0.5000	0	96.6	85	115			
Manganese	0.47	0.0020	0.5000	0	93.2	85	115			
Silver	0.093	0.0050	0.1000	0	93.1	85	115			
Zinc	0.46	0.010	0.5000	0	92.5	85	115			

Sample ID	LLCS-C		SampType:	LCSLL		TestCode:	EPA Method 200.7: Dissolved Metals			
Client ID:	BatchQC		Batch ID:	C37932		RunNo:	37932			
Prep Date:			Analysis Date:	10/13/2016		SeqNo:	1181938	Units:	mg/L	
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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	LLLCS-C	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	C37932	RunNo:	37932					
Prep Date:		Analysis Date:	10/13/2016	SeqNo:	1181938	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.0086	0.0060	0.006000	0	143	50	150			
Iron	0.017	0.020	0.02000	0	84.8	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	MB-27884		SampType: MBLK		TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW		Batch ID: 27884		RunNo: 37699					
Prep Date:	10/4/2016		Analysis Date: 10/5/2016		SeqNo: 1174527		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-27884		SampType: LCS		TestCode: EPA Method 200.7: Total Metals					
Client ID:	LCSW		Batch ID: 27884		RunNo: 37699					
Prep Date:	10/4/2016		Analysis Date: 10/5/2016		SeqNo: 1174528		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	94.6	85	115			
Cadmium	0.48	0.0020	0.5000	0	96.3	85	115			
Chromium	0.47	0.0060	0.5000	0	94.7	85	115			
Copper	0.47	0.0060	0.5000	0	93.9	85	115			
Iron	0.47	0.020	0.5000	0	93.3	85	115			
Manganese	0.46	0.0020	0.5000	0	92.7	85	115			
Silver	0.096	0.0050	0.1000	0	95.6	85	115			
Zinc	0.47	0.010	0.5000	0	94.5	85	115			

Sample ID	LLLCS-27884		SampType: LCSLL		TestCode: EPA Method 200.7: Total Metals					
Client ID:	BatchQC		Batch ID: 27884		RunNo: 37699					
Prep Date:	10/4/2016		Analysis Date: 10/5/2016		SeqNo: 1174529		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0015	0.0020	0.002000	0	77.0	50	150			J
Cadmium	0.0016	0.0020	0.002000	0	82.5	50	150			J
Chromium	0.0056	0.0060	0.006000	0	93.3	50	150			J
Copper	0.0063	0.0060	0.006000	0	105	50	150			J
Manganese	0.0019	0.0020	0.002000	0	95.5	50	150			J
Silver	0.0042	0.0050	0.005000	0	83.4	50	150			J
Zinc	0.0050	0.010	0.005000	0	100	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	LLLCS-27884	SampType:	LCSLL	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	BatchQC	Batch ID:	27884	RunNo:	37699					
Prep Date:	10/4/2016	Analysis Date:	10/5/2016	SeqNo:	1174530	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.021	0.020	0.02000	0	104	50	150			

Sample ID	1609A26-001DMS	SampType:	MS	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	OW-55	Batch ID:	27884	RunNo:	37699					
Prep Date:	10/4/2016	Analysis Date:	10/5/2016	SeqNo:	1174650	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	97.9	70	130			
Chromium	0.48	0.0060	0.5000	0.008990	94.8	70	130			
Copper	0.50	0.0060	0.5000	0.009430	97.2	70	130			
Zinc	0.50	0.010	0.5000	0.06576	86.3	70	130			

Sample ID	1609A26-001DMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	OW-55	Batch ID:	27884	RunNo:	37699					
Prep Date:	10/4/2016	Analysis Date:	10/5/2016	SeqNo:	1174651	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.49	0.0020	0.5000	0	98.1	70	130	0.261	20	
Chromium	0.48	0.0060	0.5000	0.008990	94.6	70	130	0.215	20	
Copper	0.50	0.0060	0.5000	0.009430	97.3	70	130	0.149	20	
Zinc	0.50	0.010	0.5000	0.06576	85.9	70	130	0.385	20	

Sample ID	1609A26-002DMS	SampType:	MS	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	FB091616	Batch ID:	27884	RunNo:	37699					
Prep Date:	10/4/2016	Analysis Date:	10/5/2016	SeqNo:	1174653	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	96.2	70	130			
Cadmium	0.49	0.0020	0.5000	0	98.3	70	130			
Chromium	0.48	0.0060	0.5000	0	95.8	70	130			
Copper	0.47	0.0060	0.5000	0	93.5	70	130			
Iron	0.48	0.020	0.5000	0	96.4	70	130			
Manganese	0.47	0.0020	0.5000	0	94.0	70	130			
Silver	0.099	0.0050	0.1000	0	99.1	70	130			
Zinc	0.49	0.010	0.5000	0	97.2	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	1609A26-002DMSD			SampType:	MSD			TestCode:	EPA Method 200.7: Total Metals		
Client ID:	FB091616			Batch ID:	27884			RunNo:	37699		
Prep Date:	10/4/2016			Analysis Date:	10/5/2016			SeqNo:	1174654		
								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	96.4	70	130	0.193	20		
Cadmium	0.50	0.0020	0.5000	0	99.4	70	130	1.11	20		
Chromium	0.48	0.0060	0.5000	0	96.7	70	130	0.983	20		
Copper	0.47	0.0060	0.5000	0	93.6	70	130	0.118	20		
Iron	0.47	0.020	0.5000	0	94.5	70	130	1.97	20		
Manganese	0.47	0.0020	0.5000	0	94.4	70	130	0.425	20		
Silver	0.10	0.0050	0.1000	0	99.6	70	130	0.473	20		
Zinc	0.49	0.010	0.5000	0	97.1	70	130	0.0988	20		

Sample ID	1609A26-001DMS			SampType:	MS			TestCode:	EPA Method 200.7: Total Metals		
Client ID:	OW-55			Batch ID:	27884			RunNo:	37749		
Prep Date:	10/4/2016			Analysis Date:	10/6/2016			SeqNo:	1176009		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Silver	0.036	0.0050	0.1000	0	36.1	70	130			S	

Sample ID	1609A26-001DMSD			SampType:	MSD			TestCode:	EPA Method 200.7: Total Metals		
Client ID:	OW-55			Batch ID:	27884			RunNo:	37749		
Prep Date:	10/4/2016			Analysis Date:	10/6/2016			SeqNo:	1176013		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Silver	0.034	0.0050	0.1000	0	33.8	70	130	6.64	20	S	

Sample ID	1609A26-001DMS			SampType:	MS			TestCode:	EPA Method 200.7: Total Metals		
Client ID:	OW-55			Batch ID:	27884			RunNo:	37749		
Prep Date:	10/4/2016			Analysis Date:	10/6/2016			SeqNo:	1176016		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	1.7	0.010	0.5000	1.221	100	70	130				

Sample ID	1609A26-001DMSD			SampType:	MSD			TestCode:	EPA Method 200.7: Total Metals		
Client ID:	OW-55			Batch ID:	27884			RunNo:	37749		
Prep Date:	10/4/2016			Analysis Date:	10/6/2016			SeqNo:	1176017		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Barium	1.7	0.010	0.5000	1.221	95.9	70	130	1.19	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: C37623			RunNo: 37623						
Prep Date:	Analysis Date: 9/30/2016			SeqNo: 1171239		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.4	85	115			
Lead	0.012	0.00050	0.01250	0	94.9	85	115			
Selenium	0.024	0.0010	0.02500	0	94.0	85	115			
Uranium	0.012	0.00050	0.01250	0	93.6	85	115			

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: C37623			RunNo: 37623						
Prep Date:	Analysis Date: 9/30/2016			SeqNo: 1171246		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	100	50	150			
Lead	0.00050	0.00050	0.0005000	0	100	50	150			
Selenium	0.0011	0.0010	0.001000	0	107	50	150			
Uranium	0.00049	0.00050	0.0005000	0	97.0	50	150			J

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: C37623			RunNo: 37623						
Prep Date:	Analysis Date: 9/30/2016			SeqNo: 1171252		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								
Uranium	ND	0.00050								

Sample ID LLCS	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: C37789			RunNo: 37789						
Prep Date:	Analysis Date: 10/7/2016			SeqNo: 1177742		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	110	50	150			
Selenium	0.0011	0.0010	0.001000	0	110	50	150			
Uranium	0.00051	0.00050	0.0005000	0	103	50	150			

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: C37789			RunNo: 37789						
Prep Date:	Analysis Date: 10/7/2016			SeqNo: 1177744		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Batch ID: C37789			RunNo: 37789						
Prep Date:		Analysis Date: 10/7/2016			SeqNo: 1177744		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium		ND	0.0010								
Uranium		ND	0.00050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID 1609A26-003DMSLL SampType: MSLL TestCode: 200.8 ICPMS Metals:Total										
Client ID: OW-56		Batch ID: 27884				RunNo: 37763				
Prep Date: 10/4/2016		Analysis Date: 10/6/2016				SeqNo: 1176367		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.015	0.00050	0.01250	0.001040	113	70	130			

Sample ID	MB-27884		SampType: MBLK		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	PBW		Batch ID: 27884		RunNo: 37763					
Prep Date:	10/4/2016		Analysis Date: 10/6/2016		SeqNo: 1176393		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								
Uranium	ND	0.00050								

Sample ID	MSLCS-27884			SampType:	LCS		TestCode:	200.8 ICPMS Metals:Total			
Client ID:	LCSW			Batch ID:	27884		RunNo:	37763			
Prep Date:	10/4/2016			Analysis Date:	10/6/2016		SeqNo:	1176395		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.025	0.0010	0.02500	0	99.8	85	115				
Lead	0.013	0.00050	0.01250	0	104	85	115				
Selenium	0.024	0.0010	0.02500	0	97.4	85	115				
Uranium	0.013	0.00050	0.01250	0	102	85	115				

Sample ID	MSLLCS-27884			SampType:	LCSLL			TestCode:	200.8 ICPMS Metals:Total				
Client ID:	BatchQC			Batch ID:	27884			RunNo:	37763				
Prep Date:	10/4/2016			Analysis Date:	10/6/2016			SeqNo:	1176397		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Arsenic	0.0010	0.0010	0.001000	0	104	50	150						
Lead	0.00052	0.00050	0.0005000	0	105	50	150						
Selenium	0.00089	0.0010	0.001000	0	89.5	50	150				J		
Uranium	0.00049	0.00050	0.0005000	0	98.8	50	150				J		

Sample ID	1609A26-003DMSLL			SampType:	MSLL			TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-56			Batch ID:	27884			RunNo:	37781					
Prep Date:	10/4/2016			Analysis Date:	10/7/2016			SeqNo:	1176920			Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Uranium	0.038	0.0025	0.01250	0.02415	107	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	1609A26-004DMSDL	SampType:	MSDLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-54	Batch ID:	27884	RunNo:	37781					
Prep Date:	10/4/2016	Analysis Date:	10/7/2016	SeqNo:	1176923	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.046	0.0025	0.01250	0.03164	115	70	130	1.71	20	
Uranium	0.081	0.0025	0.01250	0.06456	128	70	130	2.00	20	

Sample ID	1609A26-004DMSLL	SampType:	MSLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-54	Batch ID:	27884	RunNo:	37781					
Prep Date:	10/4/2016	Analysis Date:	10/7/2016	SeqNo:	1176924	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.047	0.0025	0.01250	0.03164	121	70	130			
Uranium	0.082	0.0025	0.01250	0.06456	141	70	130			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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	MB-27776	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	27776	RunNo:	37570					
Prep Date:	9/28/2016	Analysis Date:	9/29/2016	SeqNo:	1168946	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00011	0.00020								J

Sample ID	LCS-27776	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	27776	RunNo:	37570					
Prep Date:	9/28/2016	Analysis Date:	9/29/2016	SeqNo:	1168947	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	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	1609A26-001CMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	OW-55		Batch ID: 27591		RunNo: 37320					
Prep Date:	9/20/2016		Analysis Date: 9/20/2016		SeqNo: 1159804		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	9.9	1.0	5.000	5.350	91.4	79.6	148			
Surr: DNOP	0.58		0.5000		116	77.1	144			

Sample ID	1609A26-001CMSD		SampType:	MSD		TestCode:	EPA Method 8015M/D: Diesel Range				
Client ID:	OW-55		Batch ID:	27591		RunNo:	37320				
Prep Date:	9/20/2016		Analysis Date:	9/20/2016		SeqNo:	1159805		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	10	1.0	5.000	5.350	101	79.6	148	4.76	20		
Surr: DNOP	0.61		0.5000		122	77.1	144	0	0		

Sample ID	LCS-27591		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 27591		RunNo: 37320					
Prep Date:	9/20/2016		Analysis Date: 9/20/2016		SeqNo: 1159822		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	63.2	155			
Surr: DNOP	0.57		0.5000		114	77.1	144			

Sample ID	MB-27591	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 27591			RunNo: 37320					
Prep Date:	9/20/2016	Analysis Date: 9/20/2016			SeqNo: 1159826		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.2		1.000		116	77.1	144			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R37365		RunNo: 37365					
Prep Date:			Analysis Date: 9/21/2016		SeqNo: 1160915		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	104	70	130			
Toluene	19	1.0	20.00	0	92.7	70	130			
Chlorobenzene	19	1.0	20.00	0	94.9	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	92.5	70	130			
Trichloroethene (TCE)	16	1.0	20.00	0	81.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.0	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.7	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R37365			RunNo: 37365					
Prep Date:		Analysis Date: 9/21/2016			SeqNo: 1160916		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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R37365	RunNo:	37365					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1160916	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R37365			RunNo: 37365						
Prep Date:	Analysis Date: 9/21/2016			SeqNo: 1160916		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	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	9.7		10.00		97.5	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: W37409			RunNo: 37409						
Prep Date:	Analysis Date: 9/22/2016			SeqNo: 1162560		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	107	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Chlorobenzene	19	1.0	20.00	0	95.6	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	96.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	87.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.7	70	130			
Surr: Toluene-d8	9.7		10.00		97.5	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W37409			RunNo: 37409						
Prep Date:	Analysis Date: 9/22/2016			SeqNo: 1162561		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	W37409	RunNo:	37409					
Prep Date:		Analysis Date:	9/22/2016	SeqNo:	1162561	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: W37409			RunNo: 37409					
Prep Date:		Analysis Date: 9/22/2016			SeqNo: 1162561	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.6	70	130			
Surr: Toluene-d8	9.5		10.00		95.2	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609A26

25-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 3RD QTR (OW)

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	W37365	RunNo:	37365					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1161683	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.2	75.4	118			
Surr: BFB	10		10.00		100	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	W37365	RunNo:	37365					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1161684	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.019	0.050								J
Surr: BFB	9.7		10.00		97.3	70	130			

Sample ID	1609A26-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	FB091616	Batch ID:	W37365	RunNo:	37365					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1161687	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0.03720	82.6	53.8	128			
Surr: BFB	9.9		10.00		99.1	70	130			

Sample ID	1609A26-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	FB091616	Batch ID:	W37365	RunNo:	37365					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1161688	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0.03720	79.7	53.8	128	3.34	20	
Surr: BFB	10		10.00		103	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: Western Refining Gallup

Work Order Number: 1609A26

RcptNo: 1

Received by/date:

AF 09/16/16

Logged By: Anne Thorne

9/18/2016 2:00:00 PM

Anne Thorne

Completed By: Anne Thorne

9/19/2016

Anne Thorne

Reviewed By:

AT

09/19/16

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☒

No ☐

Not Present ☐

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Client

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of >0° C to 6.0°C

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☒

No ☐

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

12. Does paperwork match bottle labels?

(Note discrepancies on chain of custody)

Yes ☒

No ☐

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

(If no, notify customer for authorization.)

Yes ☒

No ☐

of preserved
bottles checked
for pH:

10

<2 or >12 unless noted

Adjusted?

yes

Checked by:

je

Special Handling (if applicable)

16. 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:

17. Additional remarks:

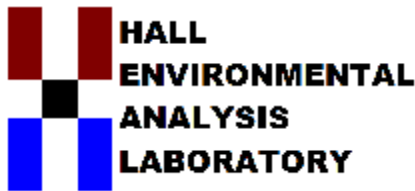
For metals analysis: added IMC to -004D and -005D for acceptable pH 09/19/16

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			

@ 1535

je



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

July 05, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: North Drainage Ditch

OrderNo.: 1605999

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 24 sample(s) on 5/20/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	5/25/2016 5:57:01 PM	25494
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	5/25/2016 5:57:01 PM	25494
Surr: DNOP	92.0	0	70-141		%Rec	1	5/25/2016 5:57:01 PM	25494
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.023	0.10		mg/L	1	5/23/2016 6:40:33 PM	R34434
Chloride	0.11	0.027	0.50	J	mg/L	1	5/23/2016 6:40:33 PM	R34434
Sulfate	ND	0.064	0.50		mg/L	1	5/23/2016 6:40:33 PM	R34434
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	ND	0.0013	0.0020		mg/L	1	5/27/2016 12:12:00 PM	A34524
Beryllium	ND	0.00031	0.0020		mg/L	1	5/27/2016 12:12:00 PM	A34524
Cadmium	ND	0.00075	0.0020		mg/L	1	5/27/2016 12:12:00 PM	A34524
Chromium	ND	0.0018	0.0060		mg/L	1	5/27/2016 12:12:00 PM	A34524
Cobalt	ND	0.00074	0.0060		mg/L	1	5/27/2016 12:12:00 PM	A34524
Iron	ND	0.0091	0.020		mg/L	1	6/1/2016 4:20:46 PM	A34614
Manganese	0.00033	0.00032	0.0020	J	mg/L	1	5/27/2016 12:12:00 PM	A34524
Nickel	ND	0.0024	0.010		mg/L	1	5/27/2016 12:12:00 PM	A34524
Silver	ND	0.0028	0.0050		mg/L	1	5/27/2016 12:12:00 PM	A34524
Vanadium	ND	0.0013	0.050		mg/L	1	5/27/2016 12:12:00 PM	A34524
Zinc	0.041	0.0028	0.010		mg/L	1	6/1/2016 4:20:46 PM	A34614
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	5/25/2016 11:06:29 AM	B34463
Beryllium	ND	0.00031	0.0020		mg/L	1	5/25/2016 11:06:29 AM	B34463
Cadmium	ND	0.00075	0.0020		mg/L	1	5/25/2016 11:06:29 AM	B34463
Chromium	ND	0.0022	0.0060		mg/L	1	5/25/2016 11:06:29 AM	B34463
Cobalt	ND	0.00085	0.0060		mg/L	1	5/25/2016 11:06:29 AM	B34463
Iron	ND	0.0091	0.020		mg/L	1	5/25/2016 11:06:29 AM	B34463
Manganese	ND	0.0015	0.0020		mg/L	1	5/25/2016 11:06:29 AM	B34463
Nickel	ND	0.0024	0.010		mg/L	1	5/25/2016 11:06:29 AM	B34463
Silver	ND	0.0028	0.0050		mg/L	1	5/25/2016 11:06:29 AM	B34463
Vanadium	ND	0.0015	0.050		mg/L	1	5/25/2016 11:06:29 AM	B34463
Zinc	ND	0.0039	0.010		mg/L	1	5/25/2016 11:06:29 AM	B34463
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Antimony	ND	0.00047	0.0010		mg/L	1	5/23/2016 5:12:34 PM	C34426
Arsenic	ND	0.00014	0.0010		mg/L	1	5/23/2016 5:12:34 PM	C34426
Lead	ND	0.00017	0.00050		mg/L	1	5/23/2016 5:12:34 PM	C34426
Selenium	ND	0.00021	0.0010		mg/L	1	5/23/2016 5:12:34 PM	C34426

EPA 200.8: METALS

Analyst: **DBD**

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: METALS							Analyst: DBD	
Antimony	ND	0.00047	0.0010		mg/L	1	5/26/2016 2:13:58 PM	A34508
Arsenic	ND	0.00029	0.0010		mg/L	1	5/26/2016 2:13:58 PM	A34508
Lead	ND	0.00017	0.00050		mg/L	1	5/26/2016 2:13:58 PM	A34508
Selenium	ND	0.00021	0.0010		mg/L	1	5/26/2016 2:13:58 PM	A34508
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	5/24/2016 10:53:03 AM	25455
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Acenaphthylene	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Aniline	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Anthracene	ND	2.5	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Azobenzene	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benz(a)anthracene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzo(a)pyrene	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzoic acid	ND	2.6	20		µg/L	1	5/24/2016 3:03:16 PM	25437
Benzyl alcohol	ND	3.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Bis(2-ethylhexyl)phthalate	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Carbazole	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Chloroaniline	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Chloronaphthalene	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Chlorophenol	ND	2.2	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Chrysene	ND	2.8	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Di-n-octyl phthalate	ND	2.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Dibenzofuran	ND	2.5	10		µg/L	1	5/24/2016 3:03:16 PM	25437
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Diethyl phthalate	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Dimethyl phthalate	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	5/24/2016 3:03:16 PM	25437
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	5/24/2016 3:03:16 PM	25437
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	5/24/2016 3:03:16 PM	25437
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Fluoranthene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Fluorene	ND	2.7	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Hexachlorobenzene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Hexachlorobutadiene	ND	2.2	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Hexachloroethane	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Isophorone	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
1-Methylnaphthalene	ND	2.9	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Methylnaphthalene	ND	2.9	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Methylphenol	ND	2.5	10		µg/L	1	5/24/2016 3:03:16 PM	25437
3+4-Methylphenol	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	5/24/2016 3:03:16 PM	25437
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Naphthalene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Nitroaniline	ND	2.8	10		µg/L	1	5/24/2016 3:03:16 PM	25437
3-Nitroaniline	ND	2.9	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Nitroaniline	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Nitrobenzene	ND	2.8	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2-Nitrophenol	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
4-Nitrophenol	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Pentachlorophenol	ND	2.3	20		µg/L	1	5/24/2016 3:03:16 PM	25437
Phenanthrene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Phenol	ND	2.0	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Pyrene	ND	3.1	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Pyridine	ND	2.2	10		µg/L	1	5/24/2016 3:03:16 PM	25437
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	5/24/2016 3:03:16 PM	25437
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	5/24/2016 3:03:16 PM	25437

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	5/24/2016 3:03:16 PM	25437
Surr: 2-Fluorophenol	46.5	0	15-123		%Rec	1	5/24/2016 3:03:16 PM	25437
Surr: Phenol-d5	37.0	0	4.13-124		%Rec	1	5/24/2016 3:03:16 PM	25437
Surr: 2,4,6-Tribromophenol	58.8	0	18.4-134		%Rec	1	5/24/2016 3:03:16 PM	25437
Surr: Nitrobenzene-d5	65.7	0	28.8-134		%Rec	1	5/24/2016 3:03:16 PM	25437
Surr: 2-Fluorobiphenyl	62.3	0	35.9-125		%Rec	1	5/24/2016 3:03:16 PM	25437
Surr: 4-Terphenyl-d14	34.7	0	15-146		%Rec	1	5/24/2016 3:03:16 PM	25437
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Toluene	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Ethylbenzene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Naphthalene	ND	0.093	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Acetone	6.8	4.9	10	J	µg/L	1	5/26/2016 4:14:52 PM	A34513
Bromobenzene	ND	0.098	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Bromodichloromethane	ND	0.14	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Bromoform	ND	0.10	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Bromomethane	ND	0.78	3.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
2-Butanone	ND	0.74	10		µg/L	1	5/26/2016 4:14:52 PM	A34513
Carbon disulfide	ND	0.60	10		µg/L	1	5/26/2016 4:14:52 PM	A34513
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Chlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Chloroethane	ND	0.19	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Chloroform	ND	0.089	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Chloromethane	ND	0.21	3.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Dibromochloromethane	ND	0.087	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Dibromomethane	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
2-Hexanone	ND	0.84	10		µg/L	1	5/26/2016 4:14:52 PM	A34513
Isopropylbenzene	ND	0.10	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	5/26/2016 4:14:52 PM	A34513
Methylene Chloride	ND	0.19	3.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
n-Butylbenzene	ND	0.16	3.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
n-Propylbenzene	ND	0.13	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Styrene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Vinyl chloride	ND	0.20	1.0		µg/L	1	5/26/2016 4:14:52 PM	A34513
Xylenes, Total	ND	0.37	1.5		µg/L	1	5/26/2016 4:14:52 PM	A34513
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	5/26/2016 4:14:52 PM	A34513
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	5/26/2016 4:14:52 PM	A34513
Surr: Dibromofluoromethane	105	0	70-130		%Rec	1	5/26/2016 4:14:52 PM	A34513
Surr: Toluene-d8	103	0	70-130		%Rec	1	5/26/2016 4:14:52 PM	A34513

EPA METHOD 8015D: GASOLINE RANGE

Analyst: DJF

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605999**

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: EB051916

Project: North Drainage Ditch

Collection Date: 5/19/2016 6:30:00 PM

Lab ID: 1605999-001

Matrix: AQUEOUS

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	5/26/2016 4:14:52 PM	C34513
Surr: BFB	101	0	70-130		%Rec	1	5/26/2016 4:14:52 PM	C34513

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: MeOH Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605999-002

Matrix: MEOH BLAN

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.020	0.025		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Toluene	ND	0.0030	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Ethylbenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.016	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2,4-Trimethylbenzene	ND	0.0037	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,3,5-Trimethylbenzene	ND	0.0036	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2-Dichloroethane (EDC)	ND	0.013	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2-Dibromoethane (EDB)	ND	0.0036	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Naphthalene	ND	0.0078	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1-Methylnaphthalene	ND	0.011	0.20		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
2-Methylnaphthalene	ND	0.011	0.20		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Acetone	ND	0.065	0.75		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Bromobenzene	ND	0.0040	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Bromodichloromethane	ND	0.0029	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Bromoform	ND	0.0061	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Bromomethane	ND	0.018	0.15		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
2-Butanone	ND	0.029	0.50		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Carbon disulfide	ND	0.017	0.50		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Carbon tetrachloride	ND	0.0033	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Chlorobenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Chloroethane	ND	0.010	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Chloroform	ND	0.0038	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Chloromethane	ND	0.0044	0.15		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
2-Chlorotoluene	ND	0.0037	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
4-Chlorotoluene	ND	0.0044	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
cis-1,2-DCE	ND	0.0029	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
cis-1,3-Dichloropropene	ND	0.0046	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2-Dibromo-3-chloropropane	ND	0.015	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Dibromochloromethane	ND	0.0045	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Dibromomethane	ND	0.0043	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2-Dichlorobenzene	ND	0.0044	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,3-Dichlorobenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,4-Dichlorobenzene	ND	0.0062	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Dichlorodifluoromethane	ND	0.015	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1-Dichloroethane	ND	0.0027	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1-Dichloroethene	ND	0.016	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2-Dichloropropane	ND	0.0042	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,3-Dichloropropane	ND	0.0057	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
2,2-Dichloropropane	ND	0.0029	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: MeOH Blank

Project: North Drainage Ditch

Collection Date:

Lab ID: 1605999-002

Matrix: MEOH BLAN

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,1-Dichloropropene	ND	0.0040	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Hexachlorobutadiene	ND	0.0061	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
2-Hexanone	ND	0.027	0.50		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Isopropylbenzene	ND	0.0043	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
4-Isopropyltoluene	ND	0.0045	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
4-Methyl-2-pentanone	ND	0.015	0.50		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Methylene chloride	0.017	0.014	0.15	J	mg/Kg	1	5/24/2016 4:23:31 PM	C34454
n-Butylbenzene	ND	0.0044	0.15		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
n-Propylbenzene	ND	0.0038	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
sec-Butylbenzene	ND	0.0069	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Styrene	ND	0.0045	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
tert-Butylbenzene	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0048	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0081	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Tetrachloroethene (PCE)	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
trans-1,2-DCE	ND	0.014	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
trans-1,3-Dichloropropene	ND	0.0073	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2,3-Trichlorobenzene	ND	0.0075	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2,4-Trichlorobenzene	ND	0.0053	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1,1-Trichloroethane	ND	0.0031	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,1,2-Trichloroethane	ND	0.0059	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Trichloroethene (TCE)	ND	0.0054	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Trichlorofluoromethane	ND	0.0037	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
1,2,3-Trichloropropane	ND	0.0086	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Vinyl chloride	ND	0.0041	0.050		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Xylenes, Total	ND	0.0095	0.10		mg/Kg	1	5/24/2016 4:23:31 PM	C34454
Surr: Dibromofluoromethane	85.3		70-130		%Rec	1	5/24/2016 4:23:31 PM	C34454
Surr: 1,2-Dichloroethane-d4	76.5		70-130		%Rec	1	5/24/2016 4:23:31 PM	C34454
Surr: Toluene-d8	101		70-130		%Rec	1	5/24/2016 4:23:31 PM	C34454
Surr: 4-Bromofluorobenzene	104		70-130		%Rec	1	5/24/2016 4:23:31 PM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:00:00 PM

Lab ID: 1605999-003

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.2	12		mg/Kg-dr	1	5/25/2016 11:36:54 AM	25464
Motor Oil Range Organics (MRO)	ND	58	58		mg/Kg-dr	1	5/25/2016 11:36:54 AM	25464
Surr: DNOP	104	0	70-130		%Rec	1	5/25/2016 11:36:54 AM	25464
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	16	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.026	0.00068	0.039	J	mg/Kg-dr	1	6/7/2016 2:06:17 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	7.0	15		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Arsenic	ND	4.3	15		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Barium	390	0.29	0.59		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Beryllium	2.0	0.027	0.89		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Cadmium	ND	0.38	0.59		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Chromium	29	0.74	1.8		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Cobalt	10	0.23	1.8		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Iron	20000	120	300		mg/Kg-dr	100	6/7/2016 2:27:22 PM	25680
Lead	8.7	1.0	1.5		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Manganese	390	0.11	0.24		mg/Kg-dr	2	6/7/2016 3:25:12 PM	25680
Nickel	21	0.68	3.0		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Selenium	ND	6.5	15		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Silver	ND	0.19	1.5		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Vanadium	35	0.21	15		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
Zinc	38	3.4	15		mg/Kg-dr	5	6/13/2016 8:07:53 AM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Acenaphthylene	ND	0.096	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Anthracene	ND	0.079	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Azobenzene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzo(a)pyrene	ND	0.090	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzo(g,h,i)perylene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzo(k)fluoranthene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzoic acid	ND	0.098	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Benzyl alcohol	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:00:00 PM

Lab ID: 1605999-003

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.087	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Bis(2-ethylhexyl)phthalate	ND	0.097	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Butyl benzyl phthalate	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Carbazole	ND	0.080	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Chloro-3-methylphenol	ND	0.14	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Chloroaniline	ND	0.13	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Chloronaphthalene	ND	0.093	0.30		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Chlorophenol	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Di-n-butyl phthalate	ND	0.089	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Dibenz(a,h)anthracene	ND	0.096	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
1,2-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
1,3-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
3,3'-Dichlorobenzidine	ND	0.087	0.30		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.072	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4-Dinitrophenol	ND	0.079	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.59		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Fluoranthene	ND	0.068	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Hexachlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.093	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Methylphenol	ND	0.099	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
3+4-Methylphenol	ND	0.086	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:00:00 PM

Lab ID: 1605999-003

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
3-Nitroaniline	ND	0.10	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Nitroaniline	ND	0.084	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
4-Nitrophenol	ND	0.090	0.30		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Pentachlorophenol	ND	0.076	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Phenanthrene	ND	0.080	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Phenol	ND	0.089	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Pyrene	ND	0.090	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Pyridine	ND	0.094	0.47		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
2,4,6-Trichlorophenol	ND	0.098	0.24		mg/Kg-dr	1	5/26/2016 9:24:02 PM	25469
Surr: 2-Fluorophenol	48.7	0	28.3-102		%Rec	1	5/26/2016 9:24:02 PM	25469
Surr: Phenol-d5	52.9	0	35.7-103		%Rec	1	5/26/2016 9:24:02 PM	25469
Surr: 2,4,6-Tribromophenol	67.3	0	35.2-108		%Rec	1	5/26/2016 9:24:02 PM	25469
Surr: Nitrobenzene-d5	56.0		24-118		%Rec	1	5/26/2016 9:24:02 PM	25469
Surr: 2-Fluorobiphenyl	62.8		35.4-111		%Rec	1	5/26/2016 9:24:02 PM	25469
Surr: 4-Terphenyl-d14	79.4		15-91.7		%Rec	1	5/26/2016 9:24:02 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Toluene	1.35	0.323	2.68	J	µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Ethylbenzene	ND	0.360	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.450	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2,4-Trimethylbenzene	0.696	0.454	2.68	J	µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.442	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Naphthalene	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1-Methylnaphthalene	ND	0.304	5.35		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
2-Methylnaphthalene	ND	0.705	5.35		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Acetone	46.2	0.792	13.4		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Bromobenzene	ND	0.272	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Bromodichloromethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Bromoform	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:00:00 PM

Lab ID: 1605999-003

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.482	4.02		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
2-Butanone	5.67	0.965	13.4	J	µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Carbon disulfide	ND	0.990	13.4		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Carbon tetrachloride	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Chlorobenzene	ND	0.307	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Chloroethane	ND	0.494	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Chloroform	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Chloromethane	ND	0.678	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
2-Chlorotoluene	ND	0.455	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
4-Chlorotoluene	ND	0.445	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
cis-1,2-DCE	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
cis-1,3-Dichloropropene	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.285	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Dibromochloromethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Dibromomethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2-Dichlorobenzene	ND	0.390	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,3-Dichlorobenzene	ND	0.494	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,4-Dichlorobenzene	ND	0.501	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Dichlorodifluoromethane	ND	1.56	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1-Dichloroethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1-Dichloroethene	ND	0.438	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2-Dichloropropane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,3-Dichloropropane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
2,2-Dichloropropane	ND	0.338	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1-Dichloropropene	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Hexachlorobutadiene	ND	0.610	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
2-Hexanone	ND	0.667	13.4		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Isopropylbenzene	ND	0.337	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
4-Isopropyltoluene	ND	0.502	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
4-Methyl-2-pentanone	ND	5.35	13.4		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Methylene chloride	ND	2.68	4.02		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
n-Butylbenzene	ND	0.652	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
n-Propylbenzene	ND	0.479	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
sec-Butylbenzene	ND	0.475	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Styrene	ND	0.342	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
tert-Butylbenzene	ND	0.391	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Tetrachloroethene (PCE)	ND	0.352	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:00:00 PM

Lab ID: 1605999-003

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.270	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
trans-1,3-Dichloropropene	ND	0.324	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.648	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.812	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1,1-Trichloroethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,1,2-Trichloroethane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Trichloroethene (TCE)	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Trichlorofluoromethane	ND	0.336	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
1,2,3-Trichloropropane	ND	2.68	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Vinyl chloride	ND	0.704	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Xylenes, Total	ND	1.07	2.68		µg/Kg-dry	1	5/25/2016 8:44:00 PM	25496
Surr: 1,2-Dichloroethane-d4	96.1	0	70-130		%Rec	1	5/25/2016 8:44:00 PM	25496
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	5/25/2016 8:44:00 PM	25496
Surr: Dibromofluoromethane	89.2	0	70-130		%Rec	1	5/25/2016 8:44:00 PM	25496
Surr: Toluene-d8	98.9	0	70-130		%Rec	1	5/25/2016 8:44:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.73	0.55	3.7	J	mg/Kg-dr	1	5/24/2016 4:51:50 PM	A34454
Surr: BFB	96.9	0	70-130		%Rec	1	5/24/2016 4:51:50 PM	A34454

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:15:00 PM

Lab ID: 1605999-004

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.6	13		mg/Kg-dr	1	5/25/2016 11:58:44 AM	25464
Motor Oil Range Organics (MRO)	ND	64	64		mg/Kg-dr	1	5/25/2016 11:58:44 AM	25464
Surr: DNOP	102	0	70-130		%Rec	1	5/25/2016 11:58:44 AM	25464
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	20	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0043	0.00070	0.041	J	mg/Kg-dr	1	6/7/2016 2:11:43 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	3.0	6.3		mg/Kg-dr	2	6/7/2016 3:32:47 PM	25680
Arsenic	1.3	0.92	3.2	J	mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Barium	370	0.12	0.25		mg/Kg-dr	2	6/7/2016 3:32:47 PM	25680
Beryllium	1.1	0.0058	0.19		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Cadmium	ND	0.080	0.13		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Chromium	10	0.16	0.38		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Cobalt	5.5	0.048	0.38		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Iron	17000	120	320		mg/Kg-dr	100	6/7/2016 2:28:54 PM	25680
Lead	4.6	0.22	0.32		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Manganese	450	0.11	0.25		mg/Kg-dr	2	6/7/2016 3:32:47 PM	25680
Nickel	9.9	0.14	0.63		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Selenium	ND	1.4	3.2		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Silver	ND	0.040	0.32		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Vanadium	19	0.044	3.2		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
Zinc	16	0.72	3.2		mg/Kg-dr	1	6/7/2016 3:31:02 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Anthracene	ND	0.083	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzo(a)pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzoic acid	ND	0.10	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Benzyl alcohol	ND	0.098	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Bis(2-chloroethoxy)methane	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:15:00 PM

Lab ID: 1605999-004

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.092	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Bis(2-ethylhexyl)phthalate	ND	0.10	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Carbazole	ND	0.084	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Chloro-3-methylphenol	ND	0.15	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Chloroaniline	ND	0.14	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Chloronaphthalene	ND	0.098	0.31		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Chlorophenol	ND	0.098	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Di-n-butyl phthalate	ND	0.093	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Di-n-octyl phthalate	ND	0.11	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Dibenzofuran	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
1,2-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
1,3-Dichlorobenzene	ND	0.096	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
1,4-Dichlorobenzene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
3,3'-Dichlorobenzidine	ND	0.092	0.31		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4-Dichlorophenol	ND	0.12	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4-Dimethylphenol	ND	0.14	0.37		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.075	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4-Dinitrophenol	ND	0.083	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.62		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Fluoranthene	ND	0.072	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Hexachlorobenzene	ND	0.098	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
1-Methylnaphthalene	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Methylphenol	ND	0.10	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
3+4-Methylphenol	ND	0.090	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:15:00 PM

Lab ID: 1605999-004

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Nitroaniline	ND	0.088	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Nitrobenzene	ND	0.13	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
4-Nitrophenol	ND	0.095	0.31		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Pentachlorophenol	ND	0.080	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Phenanthrene	ND	0.085	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Phenol	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Pyridine	ND	0.099	0.50		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 9:53:57 PM	25469
Surr: 2-Fluorophenol	64.5	0	28.3-102		%Rec	1	5/26/2016 9:53:57 PM	25469
Surr: Phenol-d5	70.3	0	35.7-103		%Rec	1	5/26/2016 9:53:57 PM	25469
Surr: 2,4,6-Tribromophenol	89.2	0	35.2-108		%Rec	1	5/26/2016 9:53:57 PM	25469
Surr: Nitrobenzene-d5	67.2		24-118		%Rec	1	5/26/2016 9:53:57 PM	25469
Surr: 2-Fluorobiphenyl	79.2		35.4-111		%Rec	1	5/26/2016 9:53:57 PM	25469
Surr: 4-Terphenyl-d14	113		15-91.7	S	%Rec	1	5/26/2016 9:53:57 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Toluene	0.932	0.304	2.52	J	µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Ethylbenzene	ND	0.339	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.423	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2,4-Trimethylbenzene	0.441	0.427	2.52	J	µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.416	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Naphthalene	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1-Methylnaphthalene	ND	0.286	5.04		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
2-Methylnaphthalene	ND	0.663	5.04		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Acetone	26.4	0.745	12.6		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Bromobenzene	ND	0.256	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Bromodichloromethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Bromoform	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:15:00 PM

Lab ID: 1605999-004

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.453	3.78		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
2-Butanone	3.11	0.908	12.6	J	µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Carbon disulfide	ND	0.932	12.6		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Carbon tetrachloride	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Chlorobenzene	ND	0.289	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Chloroethane	ND	0.465	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Chloroform	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Chloromethane	ND	0.638	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
2-Chlorotoluene	ND	0.429	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
4-Chlorotoluene	ND	0.419	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
cis-1,2-DCE	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
cis-1,3-Dichloropropene	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.268	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Dibromochloromethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Dibromomethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2-Dichlorobenzene	ND	0.367	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,3-Dichlorobenzene	ND	0.465	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,4-Dichlorobenzene	ND	0.471	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Dichlorodifluoromethane	ND	1.47	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1-Dichloroethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1-Dichloroethene	ND	0.412	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2-Dichloropropane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,3-Dichloropropane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
2,2-Dichloropropane	ND	0.318	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1-Dichloropropene	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Hexachlorobutadiene	ND	0.574	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
2-Hexanone	ND	0.627	12.6		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Isopropylbenzene	ND	0.317	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
4-Isopropyltoluene	ND	0.473	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
4-Methyl-2-pentanone	ND	5.04	12.6		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Methylene chloride	ND	2.52	3.78		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
n-Butylbenzene	ND	0.613	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
n-Propylbenzene	ND	0.451	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
sec-Butylbenzene	ND	0.447	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Styrene	ND	0.322	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
tert-Butylbenzene	ND	0.368	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Tetrachloroethene (PCE)	ND	0.331	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-17 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:15:00 PM

Lab ID: 1605999-004

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.254	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
trans-1,3-Dichloropropene	ND	0.305	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.610	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.764	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1,1-Trichloroethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,1,2-Trichloroethane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Trichloroethene (TCE)	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Trichlorofluoromethane	ND	0.317	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
1,2,3-Trichloropropane	ND	2.52	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Vinyl chloride	ND	0.663	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Xylenes, Total	ND	1.00	2.52		µg/Kg-dry	1	5/25/2016 9:09:00 PM	25496
Surr: 1,2-Dichloroethane-d4	99.2	0	70-130		%Rec	1	5/25/2016 9:09:00 PM	25496
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/25/2016 9:09:00 PM	25496
Surr: Dibromofluoromethane	89.4	0	70-130		%Rec	1	5/25/2016 9:09:00 PM	25496
Surr: Toluene-d8	96.9	0	70-130		%Rec	1	5/25/2016 9:09:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.78	0.55	3.7	J	mg/Kg-dr	1	5/24/2016 5:20:05 PM	A34454
Surr: BFB	100	0	70-130		%Rec	1	5/24/2016 5:20:05 PM	A34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:40:00 PM

Lab ID: 1605999-005

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.2	12		mg/Kg-dr	1	5/25/2016 12:20:29 PM	25450
Motor Oil Range Organics (MRO)	ND	59	59		mg/Kg-dr	1	5/25/2016 12:20:29 PM	25450
Surr: DNOP	109	0	70-130		%Rec	1	5/25/2016 12:20:29 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	19	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.012	0.00069	0.040	J	mg/Kg-dr	1	6/7/2016 2:13:32 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.9	6.2		mg/Kg-dr	2	6/7/2016 3:36:14 PM	25680
Arsenic	1.7	0.90	3.1	J	mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Barium	380	0.12	0.25		mg/Kg-dr	2	6/7/2016 3:36:14 PM	25680
Beryllium	0.84	0.0057	0.19		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Chromium	9.5	0.15	0.37		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Cobalt	4.7	0.047	0.37		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Iron	15000	120	310		mg/Kg-dr	100	6/7/2016 2:30:23 PM	25680
Lead	5.2	0.22	0.31		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Manganese	490	0.11	0.25		mg/Kg-dr	2	6/7/2016 3:36:14 PM	25680
Nickel	8.9	0.14	0.62		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Selenium	ND	1.3	3.1		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Silver	ND	0.039	0.31		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Vanadium	21	0.043	3.1		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
Zinc	19	0.70	3.1		mg/Kg-dr	1	6/7/2016 3:34:30 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Anthracene	ND	0.082	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzo(a)pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzoic acid	ND	0.10	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Benzyl alcohol	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Bis(2-chloroethoxy)methane	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:40:00 PM

Lab ID: 1605999-005

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.091	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Bis(2-ethylhexyl)phthalate	ND	0.10	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Carbazole	ND	0.084	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Chloro-3-methylphenol	ND	0.15	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Chloroaniline	ND	0.13	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Chloronaphthalene	ND	0.097	0.31		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Chlorophenol	ND	0.098	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Di-n-butyl phthalate	ND	0.093	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Di-n-octyl phthalate	ND	0.11	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Dibenzofuran	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
1,2-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
1,3-Dichlorobenzene	ND	0.096	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
1,4-Dichlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
3,3'-Dichlorobenzidine	ND	0.091	0.31		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4-Dichlorophenol	ND	0.12	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4,6-Dinitro-2-methylphenol	ND	0.075	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4-Dinitrophenol	ND	0.082	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4-Dinitrotoluene	ND	0.11	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,6-Dinitrotoluene	ND	0.13	0.62		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Fluoranthene	ND	0.071	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Hexachlorobenzene	ND	0.098	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Indeno(1,2,3-cd)pyrene	ND	0.097	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
1-Methylnaphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Methylphenol	ND	0.10	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
3+4-Methylphenol	ND	0.090	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:40:00 PM

Lab ID: 1605999-005

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Nitroaniline	ND	0.087	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Nitrobenzene	ND	0.13	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
4-Nitrophenol	ND	0.094	0.31		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Pentachlorophenol	ND	0.080	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Phenanthrene	ND	0.084	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Phenol	ND	0.093	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Pyridine	ND	0.098	0.50		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/26/2016 10:23:52 PM	25469
Surr: 2-Fluorophenol	43.0	0	28.3-102		%Rec	1	5/26/2016 10:23:52 PM	25469
Surr: Phenol-d5	50.6	0	35.7-103		%Rec	1	5/26/2016 10:23:52 PM	25469
Surr: 2,4,6-Tribromophenol	62.8	0	35.2-108		%Rec	1	5/26/2016 10:23:52 PM	25469
Surr: Nitrobenzene-d5	55.2		24-118		%Rec	1	5/26/2016 10:23:52 PM	25469
Surr: 2-Fluorobiphenyl	58.3		35.4-111		%Rec	1	5/26/2016 10:23:52 PM	25469
Surr: 4-Terphenyl-d14	63.4		15-91.7		%Rec	1	5/26/2016 10:23:52 PM	25469
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Toluene	0.613	0.260	2.15	J	µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Ethylbenzene	ND	0.289	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.361	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2,4-Trimethylbenzene	0.376	0.365	2.15	J	µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.355	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Naphthalene	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1-Methylnaphthalene	ND	0.244	4.30		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
2-Methylnaphthalene	ND	0.566	4.30		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Acetone	45.4	0.636	10.7		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Bromobenzene	ND	0.219	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Bromodichloromethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Bromoform	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:40:00 PM

Lab ID: 1605999-005

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.387	3.22		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
2-Butanone	3.76	0.775	10.7	J	µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Carbon disulfide	ND	0.795	10.7		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Carbon tetrachloride	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Chlorobenzene	ND	0.247	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Chloroethane	ND	0.397	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Chloroform	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Chloromethane	ND	0.545	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
2-Chlorotoluene	ND	0.366	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
4-Chlorotoluene	ND	0.357	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
cis-1,2-DCE	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
cis-1,3-Dichloropropene	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.229	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Dibromochloromethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Dibromomethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2-Dichlorobenzene	ND	0.313	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,3-Dichlorobenzene	ND	0.397	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,4-Dichlorobenzene	ND	0.402	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Dichlorodifluoromethane	ND	1.26	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1-Dichloroethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1-Dichloroethene	ND	0.352	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2-Dichloropropane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,3-Dichloropropane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
2,2-Dichloropropane	ND	0.271	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1-Dichloropropene	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Hexachlorobutadiene	ND	0.490	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
2-Hexanone	ND	0.535	10.7		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Isopropylbenzene	ND	0.271	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
4-Isopropyltoluene	ND	0.403	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
4-Methyl-2-pentanone	ND	4.30	10.7		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Methylene chloride	ND	2.15	3.22		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
n-Butylbenzene	ND	0.524	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
n-Propylbenzene	ND	0.385	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
sec-Butylbenzene	ND	0.382	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Styrene	ND	0.275	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
tert-Butylbenzene	ND	0.314	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Tetrachloroethene (PCE)	ND	0.282	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:40:00 PM

Lab ID: 1605999-005

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.217	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
trans-1,3-Dichloropropene	ND	0.260	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.520	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.652	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1,1-Trichloroethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,1,2-Trichloroethane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Trichloroethene (TCE)	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Trichlorofluoromethane	ND	0.270	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
1,2,3-Trichloropropane	ND	2.15	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Vinyl chloride	ND	0.566	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Xylenes, Total	ND	0.857	2.15		µg/Kg-dry	1	5/25/2016 9:35:00 PM	25496
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	5/25/2016 9:35:00 PM	25496
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	5/25/2016 9:35:00 PM	25496
Surr: Dibromofluoromethane	91.1	0	70-130		%Rec	1	5/25/2016 9:35:00 PM	25496
Surr: Toluene-d8	98.1	0	70-130		%Rec	1	5/25/2016 9:35:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.65	0.55	3.6	J	mg/Kg-dr	1	5/24/2016 5:48:35 PM	A34454
Surr: BFB	99.4	0	70-130		%Rec	1	5/24/2016 5:48:35 PM	A34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:55:00 PM

Lab ID: 1605999-006

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.1	12		mg/Kg-dr	1	5/25/2016 12:42:25 PM	25450
Motor Oil Range Organics (MRO)	ND	58	58		mg/Kg-dr	1	5/25/2016 12:42:25 PM	25450
Surr: DNOP	108	0	70-130		%Rec	1	5/25/2016 12:42:25 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	18	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0080	0.00069	0.040	J	mg/Kg-dr	1	6/7/2016 2:15:16 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	1.4	3.0		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Arsenic	2.5	0.89	3.0	J	mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Barium	560	0.12	0.24		mg/Kg-dr	2	6/7/2016 3:39:57 PM	25680
Beryllium	0.59	0.0056	0.18		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Chromium	5.8	0.15	0.36		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Cobalt	3.8	0.046	0.36		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Iron	12000	120	300		mg/Kg-dr	100	6/7/2016 2:31:54 PM	25680
Lead	3.2	0.21	0.30		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Manganese	510	0.11	0.24		mg/Kg-dr	2	6/7/2016 3:39:57 PM	25680
Nickel	5.5	0.14	0.61		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Silver	ND	0.039	0.30		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Vanadium	19	0.042	3.0		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
Zinc	11	0.69	3.0		mg/Kg-dr	1	6/7/2016 3:38:09 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Acenaphthylene	ND	0.098	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Anthracene	ND	0.080	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzo(a)pyrene	ND	0.091	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzoic acid	ND	0.099	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Benzyl alcohol	ND	0.094	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:55:00 PM

Lab ID: 1605999-006

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.088	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.098	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Carbazole	ND	0.081	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Chloro-3-methylphenol	ND	0.14	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Chloroaniline	ND	0.13	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Chloronaphthalene	ND	0.094	0.30		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Chlorophenol	ND	0.095	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Di-n-butyl phthalate	ND	0.090	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Di-n-octyl phthalate	ND	0.10	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Dibenz(a,h)anthracene	ND	0.097	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
1,2-Dichlorobenzene	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
1,3-Dichlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
3,3'-Dichlorobenzidine	ND	0.088	0.30		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4-Dichlorophenol	ND	0.11	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4-Dimethylphenol	ND	0.13	0.36		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.073	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4-Dinitrophenol	ND	0.080	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.60		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Fluoranthene	ND	0.069	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Hexachlorobenzene	ND	0.095	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Hexachlorobutadiene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.094	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Methylphenol	ND	0.10	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
3+4-Methylphenol	ND	0.087	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:55:00 PM

Lab ID: 1605999-006

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Naphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Nitroaniline	ND	0.085	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Nitrobenzene	ND	0.12	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
4-Nitrophenol	ND	0.091	0.30		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Pentachlorophenol	ND	0.077	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Phenanthrene	ND	0.081	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Phenol	ND	0.090	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Pyrene	ND	0.091	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Pyridine	ND	0.095	0.48		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
2,4,6-Trichlorophenol	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 12:04:31 PM	25502
Surr: 2-Fluorophenol	48.2	0	28.3-102		%Rec	1	5/31/2016 12:04:31 PM	25502
Surr: Phenol-d5	53.8	0	35.7-103		%Rec	1	5/31/2016 12:04:31 PM	25502
Surr: 2,4,6-Tribromophenol	69.9	0	35.2-108		%Rec	1	5/31/2016 12:04:31 PM	25502
Surr: Nitrobenzene-d5	57.2		24-118		%Rec	1	5/31/2016 12:04:31 PM	25502
Surr: 2-Fluorobiphenyl	54.2		35.4-111		%Rec	1	5/31/2016 12:04:31 PM	25502
Surr: 4-Terphenyl-d14	47.0		15-91.7		%Rec	1	5/31/2016 12:04:31 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Toluene	ND	0.204	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Ethylbenzene	ND	0.227	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.284	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.287	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.279	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Naphthalene	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1-Methylnaphthalene	ND	0.192	3.38		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
2-Methylnaphthalene	ND	0.445	3.38		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Acetone	16.7	0.500	8.45		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Bromobenzene	ND	0.172	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Bromodichloromethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Bromoform	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:55:00 PM

Lab ID: 1605999-006

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.304	2.54		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
2-Butanone	1.68	0.610	8.45	J	µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Carbon disulfide	ND	0.625	8.45		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Carbon tetrachloride	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Chlorobenzene	ND	0.194	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Chloroethane	ND	0.312	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Chloroform	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Chloromethane	ND	0.428	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
2-Chlorotoluene	ND	0.288	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
4-Chlorotoluene	ND	0.281	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
cis-1,2-DCE	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
cis-1,3-Dichloropropene	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.180	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Dibromochloromethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Dibromomethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2-Dichlorobenzene	ND	0.246	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,3-Dichlorobenzene	ND	0.312	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,4-Dichlorobenzene	ND	0.317	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Dichlorodifluoromethane	ND	0.987	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1-Dichloroethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1-Dichloroethene	ND	0.277	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2-Dichloropropane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,3-Dichloropropane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
2,2-Dichloropropane	ND	0.214	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1-Dichloropropene	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Hexachlorobutadiene	ND	0.385	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
2-Hexanone	ND	0.421	8.45		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Isopropylbenzene	ND	0.213	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
4-Isopropyltoluene	ND	0.317	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
4-Methyl-2-pentanone	ND	3.38	8.45		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Methylene chloride	ND	1.69	2.54		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
n-Butylbenzene	ND	0.412	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
n-Propylbenzene	ND	0.303	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
sec-Butylbenzene	ND	0.300	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Styrene	ND	0.216	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
tert-Butylbenzene	ND	0.247	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Tetrachloroethene (PCE)	ND	0.222	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-15 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 12:55:00 PM

Lab ID: 1605999-006

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.171	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
trans-1,3-Dichloropropene	ND	0.205	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.409	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.513	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1,1-Trichloroethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,1,2-Trichloroethane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Trichloroethene (TCE)	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Trichlorofluoromethane	ND	0.212	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
1,2,3-Trichloropropane	ND	1.69	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Vinyl chloride	ND	0.445	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Xylenes, Total	ND	0.674	1.69		µg/Kg-dry	1	5/25/2016 10:00:00 PM	25496
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	5/25/2016 10:00:00 PM	25496
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	5/25/2016 10:00:00 PM	25496
Surr: Dibromofluoromethane	90.4	0	70-130		%Rec	1	5/25/2016 10:00:00 PM	25496
Surr: Toluene-d8	97.6	0	70-130		%Rec	1	5/25/2016 10:00:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.65	0.48	3.2	J	mg/Kg-dr	1	5/24/2016 6:16:49 PM	A34454
Surr: BFB	99.0	0	70-130		%Rec	1	5/24/2016 6:16:49 PM	A34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:15:00 PM

Lab ID: 1605999-007

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.7	13		mg/Kg-dr	1	5/25/2016 1:03:56 PM	25450
Motor Oil Range Organics (MRO)	ND	65	65		mg/Kg-dr	1	5/25/2016 1:03:56 PM	25450
Surr: DNOP	110	0	70-130		%Rec	1	5/25/2016 1:03:56 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	26	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0045	0.00075	0.044	J	mg/Kg-dr	1	6/7/2016 2:17:00 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	5.4	3.2	6.7	J	mg/Kg-dr	2	6/7/2016 3:51:00 PM	25680
Arsenic	1.2	0.97	3.3	J	mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Barium	310	0.065	0.13		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Beryllium	1.2	0.0061	0.20		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Cadmium	ND	0.084	0.13		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Chromium	13	0.17	0.40		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Cobalt	6.4	0.051	0.40		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Iron	20000	130	330		mg/Kg-dr	100	6/7/2016 2:33:25 PM	25680
Lead	4.9	0.23	0.33		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Manganese	430	0.12	0.27		mg/Kg-dr	2	6/7/2016 3:51:00 PM	25680
Nickel	12	0.15	0.67		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Selenium	ND	1.5	3.3		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Silver	ND	0.042	0.33		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Vanadium	22	0.046	3.3		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
Zinc	18	0.76	3.3		mg/Kg-dr	1	6/7/2016 3:41:43 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Anthracene	ND	0.089	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benz(a)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzoic acid	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:15:00 PM

Lab ID: 1605999-007

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.098	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Carbazole	ND	0.090	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Chloroaniline	ND	0.15	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Chloronaphthalene	ND	0.11	0.33		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Di-n-butyl phthalate	ND	0.10	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Di-n-octyl phthalate	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
3,3'-Dichlorobenzidine	ND	0.098	0.33		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4-Dichlorophenol	ND	0.12	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4-Dimethylphenol	ND	0.15	0.40		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.081	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4-Dinitrophenol	ND	0.089	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.67		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Fluoranthene	ND	0.077	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Fluorene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Hexachloroethane	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
1-Methylnaphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Methylphenol	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
3+4-Methylphenol	ND	0.097	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:15:00 PM

Lab ID: 1605999-007

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Nitroaniline	ND	0.094	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Nitrobenzene	ND	0.14	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
4-Nitrophenol	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Pentachlorophenol	ND	0.086	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Phenanthrene	ND	0.091	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Pyridine	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 1:36:40 PM	25502
Surr: 2-Fluorophenol	51.8	0	28.3-102		%Rec	1	5/31/2016 1:36:40 PM	25502
Surr: Phenol-d5	52.3	0	35.7-103		%Rec	1	5/31/2016 1:36:40 PM	25502
Surr: 2,4,6-Tribromophenol	63.8	0	35.2-108		%Rec	1	5/31/2016 1:36:40 PM	25502
Surr: Nitrobenzene-d5	58.0		24-118		%Rec	1	5/31/2016 1:36:40 PM	25502
Surr: 2-Fluorobiphenyl	53.1		35.4-111		%Rec	1	5/31/2016 1:36:40 PM	25502
Surr: 4-Terphenyl-d14	40.8		15-91.7		%Rec	1	5/31/2016 1:36:40 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Toluene	1.09	0.246	2.03	J	µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Ethylbenzene	ND	0.273	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.342	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.345	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.336	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Naphthalene	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1-Methylnaphthalene	ND	0.231	4.07		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
2-Methylnaphthalene	ND	0.535	4.07		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Acetone	30.2	0.602	10.2		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Bromobenzene	ND	0.207	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Bromodichloromethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Bromoform	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:15:00 PM

Lab ID: 1605999-007

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.366	3.05		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
2-Butanone	2.88	0.733	10.2	J	µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Carbon disulfide	ND	0.752	10.2		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Carbon tetrachloride	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Chlorobenzene	ND	0.233	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Chloroethane	ND	0.375	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Chloroform	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Chloromethane	ND	0.515	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
2-Chlorotoluene	ND	0.346	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
4-Chlorotoluene	ND	0.338	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
cis-1,2-DCE	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
cis-1,3-Dichloropropene	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.217	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Dibromochloromethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Dibromomethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2-Dichlorobenzene	ND	0.296	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,3-Dichlorobenzene	ND	0.376	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,4-Dichlorobenzene	ND	0.381	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Dichlorodifluoromethane	ND	1.19	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1-Dichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1-Dichloroethene	ND	0.333	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2-Dichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,3-Dichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
2,2-Dichloropropane	ND	0.257	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1-Dichloropropene	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Hexachlorobutadiene	ND	0.464	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
2-Hexanone	ND	0.507	10.2		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Isopropylbenzene	ND	0.256	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
4-Isopropyltoluene	ND	0.382	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
4-Methyl-2-pentanone	ND	4.07	10.2		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Methylene chloride	ND	2.03	3.05		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
n-Butylbenzene	ND	0.495	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
n-Propylbenzene	ND	0.364	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
sec-Butylbenzene	ND	0.361	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Styrene	ND	0.260	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
tert-Butylbenzene	ND	0.297	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Tetrachloroethene (PCE)	ND	0.267	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496

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	Page 32 of 159
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:15:00 PM

Lab ID: 1605999-007

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.206	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
trans-1,3-Dichloropropene	ND	0.246	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.492	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.617	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1,1-Trichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,1,2-Trichloroethane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Trichloroethene (TCE)	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Trichlorofluoromethane	ND	0.256	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
1,2,3-Trichloropropane	ND	2.03	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Vinyl chloride	ND	0.535	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Xylenes, Total	ND	0.811	2.03		µg/Kg-dry	1	5/25/2016 10:25:00 PM	25496
Surr: 1,2-Dichloroethane-d4	98.8	0	70-130		%Rec	1	5/25/2016 10:25:00 PM	25496
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	5/25/2016 10:25:00 PM	25496
Surr: Dibromofluoromethane	89.8	0	70-130		%Rec	1	5/25/2016 10:25:00 PM	25496
Surr: Toluene-d8	98.6	0	70-130		%Rec	1	5/25/2016 10:25:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.71	0.48	3.2	J	mg/Kg-dr	1	5/24/2016 6:45:04 PM	A34454
Surr: BFB	99.2	0	70-130		%Rec	1	5/24/2016 6:45:04 PM	A34454

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:35:00 PM

Lab ID: 1605999-008

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.5	13		mg/Kg-dr	1	5/25/2016 1:25:43 PM	25450
Motor Oil Range Organics (MRO)	ND	63	63		mg/Kg-dr	1	5/25/2016 1:25:43 PM	25450
Surr: DNOP	110	0	70-130		%Rec	1	5/25/2016 1:25:43 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	21	1.0	1.0		wt%	1	5/23/2016	R34494
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0048	0.00069	0.040	J	mg/Kg-dr	1	6/7/2016 2:22:28 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	3.0	6.3		mg/Kg-dr	2	6/7/2016 3:54:29 PM	25680
Arsenic	1.8	0.92	3.1	J	mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Barium	550	0.12	0.25		mg/Kg-dr	2	6/7/2016 3:54:29 PM	25680
Beryllium	0.62	0.0058	0.19		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Cadmium	ND	0.080	0.13		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Chromium	6.6	0.16	0.38		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Cobalt	3.8	0.048	0.38		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Iron	12000	120	310		mg/Kg-dr	100	6/7/2016 2:40:50 PM	25680
Lead	3.3	0.22	0.31		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Manganese	750	0.28	0.63		mg/Kg-dr	5	6/9/2016 11:16:48 AM	25680
Nickel	6.0	0.14	0.63		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Selenium	ND	1.4	3.1		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Silver	ND	0.040	0.31		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Vanadium	19	0.044	3.1		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
Zinc	13	0.72	3.1		mg/Kg-dr	1	6/7/2016 3:52:44 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Anthracene	ND	0.083	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzo(a)pyrene	ND	0.095	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzoic acid	ND	0.10	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Benzyl alcohol	ND	0.098	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:35:00 PM

Lab ID: 1605999-008

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.092	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.10	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Carbazole	ND	0.085	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Chloro-3-methylphenol	ND	0.15	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Chloroaniline	ND	0.14	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Chloronaphthalene	ND	0.099	0.31		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Chlorophenol	ND	0.099	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Di-n-butyl phthalate	ND	0.094	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Di-n-octyl phthalate	ND	0.11	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Dibenzofuran	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
1,2-Dichlorobenzene	ND	0.096	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
1,3-Dichlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
3,3'-Dichlorobenzidine	ND	0.092	0.31		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4-Dichlorophenol	ND	0.12	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4-Dimethylphenol	ND	0.14	0.38		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.076	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4-Dinitrophenol	ND	0.083	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.63		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Fluoranthene	ND	0.072	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Hexachlorobenzene	ND	0.099	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.098	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
1-Methylnaphthalene	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Methylphenol	ND	0.10	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
3+4-Methylphenol	ND	0.091	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:35:00 PM

Lab ID: 1605999-008

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Nitroaniline	ND	0.088	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Nitrobenzene	ND	0.13	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
4-Nitrophenol	ND	0.095	0.31		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Pentachlorophenol	ND	0.080	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Phenanthrene	ND	0.085	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Phenol	ND	0.094	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Pyrene	ND	0.095	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Pyridine	ND	0.099	0.50		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 2:07:08 PM	25502
Surr: 2-Fluorophenol	50.1	0	28.3-102		%Rec	1	5/31/2016 2:07:08 PM	25502
Surr: Phenol-d5	52.3	0	35.7-103		%Rec	1	5/31/2016 2:07:08 PM	25502
Surr: 2,4,6-Tribromophenol	57.3	0	35.2-108		%Rec	1	5/31/2016 2:07:08 PM	25502
Surr: Nitrobenzene-d5	55.9		24-118		%Rec	1	5/31/2016 2:07:08 PM	25502
Surr: 2-Fluorobiphenyl	53.1		35.4-111		%Rec	1	5/31/2016 2:07:08 PM	25502
Surr: 4-Terphenyl-d14	39.0		15-91.7		%Rec	1	5/31/2016 2:07:08 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	6.08	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Toluene	1.05	0.222	1.83	J	µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Ethylbenzene	ND	0.246	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.308	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.311	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.303	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Naphthalene	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1-Methylnaphthalene	ND	0.209	3.67		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
2-Methylnaphthalene	ND	0.483	3.67		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Acetone	22.2	0.543	9.17		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Bromobenzene	ND	0.187	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Bromodichloromethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Bromoform	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:35:00 PM

Lab ID: 1605999-008

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.330	2.75		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
2-Butanone	2.16	0.661	9.17	J	µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Carbon disulfide	ND	0.678	9.17		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Carbon tetrachloride	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Chlorobenzene	ND	0.210	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Chloroethane	ND	0.339	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Chloroform	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Chloromethane	ND	0.465	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
2-Chlorotoluene	ND	0.312	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
4-Chlorotoluene	ND	0.305	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
cis-1,2-DCE	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
cis-1,3-Dichloropropene	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.195	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Dibromochloromethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Dibromomethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2-Dichlorobenzene	ND	0.267	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,3-Dichlorobenzene	ND	0.339	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,4-Dichlorobenzene	ND	0.343	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Dichlorodifluoromethane	ND	1.07	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1-Dichloroethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1-Dichloroethene	ND	0.300	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2-Dichloropropane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,3-Dichloropropane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
2,2-Dichloropropane	ND	0.232	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1-Dichloropropene	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Hexachlorobutadiene	ND	0.418	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
2-Hexanone	ND	0.457	9.17		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Isopropylbenzene	ND	0.231	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
4-Isopropyltoluene	ND	0.344	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
4-Methyl-2-pentanone	ND	3.67	9.17		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Methylene chloride	ND	1.83	2.75		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
n-Butylbenzene	ND	0.447	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
n-Propylbenzene	ND	0.328	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
sec-Butylbenzene	ND	0.326	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Styrene	ND	0.234	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
tert-Butylbenzene	ND	0.268	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Tetrachloroethene (PCE)	ND	0.241	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-14 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:35:00 PM

Lab ID: 1605999-008

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.185	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
trans-1,3-Dichloropropene	ND	0.222	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.444	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.556	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1,1-Trichloroethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,1,2-Trichloroethane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Trichloroethene (TCE)	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Trichlorofluoromethane	ND	0.230	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
1,2,3-Trichloropropane	ND	1.83	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Vinyl chloride	ND	0.482	1.83		µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Xylenes, Total	0.816	0.731	1.83	J	µg/Kg-dry	1	5/25/2016 10:50:00 PM	25496
Surr: 1,2-Dichloroethane-d4	95.3	0	70-130		%Rec	1	5/25/2016 10:50:00 PM	25496
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	5/25/2016 10:50:00 PM	25496
Surr: Dibromofluoromethane	87.0	0	70-130		%Rec	1	5/25/2016 10:50:00 PM	25496
Surr: Toluene-d8	98.2	0	70-130		%Rec	1	5/25/2016 10:50:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	1.1	0.52	3.5	J	mg/Kg-dr	1	5/24/2016 7:13:19 PM	A34454
Surr: BFB	96.3	0	70-130		%Rec	1	5/24/2016 7:13:19 PM	A34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:45:00 PM

Lab ID: 1605999-009

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.5	13		mg/Kg-dr	1	5/25/2016 1:47:33 PM	25450
Motor Oil Range Organics (MRO)	ND	63	63		mg/Kg-dr	1	5/25/2016 1:47:33 PM	25450
Surr: DNOP	113	0	70-130		%Rec	1	5/25/2016 1:47:33 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	25	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0074	0.00073	0.043	J	mg/Kg-dr	1	6/7/2016 2:24:14 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	4.9	3.2	6.7	J	mg/Kg-dr	2	6/7/2016 3:58:03 PM	25680
Arsenic	1.3	0.98	3.4	J	mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Barium	450	0.13	0.27		mg/Kg-dr	2	6/7/2016 3:58:03 PM	25680
Beryllium	1.3	0.0062	0.20		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Cadmium	ND	0.085	0.13		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Chromium	13	0.17	0.40		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Cobalt	6.4	0.051	0.40		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Iron	21000	130	340		mg/Kg-dr	100	6/7/2016 2:42:19 PM	25680
Lead	5.3	0.24	0.34		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Manganese	400	0.12	0.27		mg/Kg-dr	2	6/7/2016 3:58:03 PM	25680
Nickel	13	0.15	0.67		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Selenium	ND	1.5	3.4		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Silver	ND	0.043	0.34		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Vanadium	21	0.047	3.4		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
Zinc	19	0.77	3.4		mg/Kg-dr	1	6/7/2016 3:56:12 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Anthracene	ND	0.088	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benz(a)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzoic acid	ND	0.11	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:45:00 PM

Lab ID: 1605999-009

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.097	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Carbazole	ND	0.089	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Chloroaniline	ND	0.14	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Chloronaphthalene	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Chlorophenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Di-n-butyl phthalate	ND	0.099	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Di-n-octyl phthalate	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
3,3'-Dichlorobenzidine	ND	0.098	0.33		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Diethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4-Dichlorophenol	ND	0.12	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4-Dimethylphenol	ND	0.14	0.40		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.080	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4-Dinitrophenol	ND	0.088	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.66		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Fluoranthene	ND	0.076	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Fluorene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Hexachlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Hexachloroethane	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
1-Methylnaphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Methylphenol	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
3+4-Methylphenol	ND	0.096	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:45:00 PM

Lab ID: 1605999-009

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Nitroaniline	ND	0.093	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Nitrobenzene	ND	0.14	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
4-Nitrophenol	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Pentachlorophenol	ND	0.085	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Phenanthrene	ND	0.090	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Pyridine	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 2:37:31 PM	25502
Surr: 2-Fluorophenol	50.9	0	28.3-102		%Rec	1	5/31/2016 2:37:31 PM	25502
Surr: Phenol-d5	56.0	0	35.7-103		%Rec	1	5/31/2016 2:37:31 PM	25502
Surr: 2,4,6-Tribromophenol	68.5	0	35.2-108		%Rec	1	5/31/2016 2:37:31 PM	25502
Surr: Nitrobenzene-d5	57.7		24-118		%Rec	1	5/31/2016 2:37:31 PM	25502
Surr: 2-Fluorobiphenyl	61.7		35.4-111		%Rec	1	5/31/2016 2:37:31 PM	25502
Surr: 4-Terphenyl-d14	47.1		15-91.7		%Rec	1	5/31/2016 2:37:31 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Toluene	1.19	0.237	1.96	J	µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Ethylbenzene	ND	0.263	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.329	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.332	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.323	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Naphthalene	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1-Methylnaphthalene	ND	0.223	3.92		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
2-Methylnaphthalene	ND	0.516	3.92		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Acetone	33.5	0.580	9.80		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Bromobenzene	ND	0.199	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Bromodichloromethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Bromoform	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:45:00 PM

Lab ID: 1605999-009

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.353	2.94		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
2-Butanone	2.13	0.706	9.80	J	µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Carbon disulfide	ND	0.725	9.80		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Carbon tetrachloride	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Chlorobenzene	ND	0.225	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Chloroethane	ND	0.362	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Chloroform	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Chloromethane	ND	0.496	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
2-Chlorotoluene	ND	0.333	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
4-Chlorotoluene	ND	0.326	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
cis-1,2-DCE	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
cis-1,3-Dichloropropene	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.209	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Dibromochloromethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Dibromomethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2-Dichlorobenzene	ND	0.285	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,3-Dichlorobenzene	ND	0.362	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,4-Dichlorobenzene	ND	0.367	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Dichlorodifluoromethane	ND	1.14	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1-Dichloroethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1-Dichloroethene	ND	0.321	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2-Dichloropropane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,3-Dichloropropane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
2,2-Dichloropropane	ND	0.247	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1-Dichloropropene	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Hexachlorobutadiene	ND	0.447	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
2-Hexanone	ND	0.488	9.80		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Isopropylbenzene	ND	0.247	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
4-Isopropyltoluene	ND	0.368	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
4-Methyl-2-pentanone	ND	3.92	9.80		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Methylene chloride	ND	1.96	2.94		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
n-Butylbenzene	ND	0.477	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
n-Propylbenzene	ND	0.351	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
sec-Butylbenzene	ND	0.348	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Styrene	ND	0.250	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
tert-Butylbenzene	ND	0.286	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Tetrachloroethene (PCE)	ND	0.257	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:45:00 PM

Lab ID: 1605999-009

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.198	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
trans-1,3-Dichloropropene	ND	0.237	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.474	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.594	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1,1-Trichloroethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,1,2-Trichloroethane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Trichloroethene (TCE)	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Trichlorofluoromethane	ND	0.246	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
1,2,3-Trichloropropane	ND	1.96	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Vinyl chloride	ND	0.515	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Xylenes, Total	ND	0.781	1.96		µg/Kg-dry	1	5/25/2016 11:15:00 PM	25496
Surr: 1,2-Dichloroethane-d4	95.8	0	70-130		%Rec	1	5/25/2016 11:15:00 PM	25496
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/25/2016 11:15:00 PM	25496
Surr: Dibromofluoromethane	88.2	0	70-130		%Rec	1	5/25/2016 11:15:00 PM	25496
Surr: Toluene-d8	97.2	0	70-130		%Rec	1	5/25/2016 11:15:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.76	0.60	4.0	J	mg/Kg-dr	1	5/24/2016 7:41:33 PM	A34454
Surr: BFB	97.0	0	70-130		%Rec	1	5/24/2016 7:41:33 PM	A34454

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:55:00 PM

Lab ID: 1605999-010

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.5	13		mg/Kg-dr	1	5/25/2016 2:09:14 PM	25450
Motor Oil Range Organics (MRO)	ND	63	63		mg/Kg-dr	1	5/25/2016 2:09:14 PM	25450
Surr: DNOP	107	0	70-130		%Rec	1	5/25/2016 2:09:14 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	26	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0043	0.00075	0.044	J	mg/Kg-dr	1	6/7/2016 2:26:01 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	4.4	3.1	6.6	J	mg/Kg-dr	2	6/7/2016 4:01:46 PM	25680
Arsenic	1.2	0.97	3.3	J	mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Barium	280	0.064	0.13		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Beryllium	1.2	0.0061	0.20		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Cadmium	ND	0.084	0.13		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Chromium	12	0.17	0.40		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Cobalt	6.2	0.050	0.40		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Iron	20000	130	330		mg/Kg-dr	100	6/7/2016 2:43:49 PM	25680
Lead	6.2	0.23	0.33		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Manganese	320	0.059	0.13		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Nickel	12	0.15	0.66		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Selenium	ND	1.4	3.3		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Silver	ND	0.042	0.33		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Vanadium	20	0.046	3.3		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
Zinc	19	0.76	3.3		mg/Kg-dr	1	6/7/2016 3:59:59 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Anthracene	ND	0.088	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benz(a)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzoic acid	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502

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Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:55:00 PM

Lab ID: 1605999-010

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.098	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Carbazole	ND	0.090	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Chloroaniline	ND	0.14	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Chloronaphthalene	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Di-n-butyl phthalate	ND	0.10	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Di-n-octyl phthalate	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
3,3'-Dichlorobenzidine	ND	0.098	0.33		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4-Dichlorophenol	ND	0.12	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4-Dimethylphenol	ND	0.14	0.40		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.081	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4-Dinitrophenol	ND	0.088	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.67		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Fluoranthene	ND	0.077	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Fluorene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Hexachloroethane	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
1-Methylnaphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Methylphenol	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
3+4-Methylphenol	ND	0.096	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:55:00 PM

Lab ID: 1605999-010

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Nitroaniline	ND	0.094	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Nitrobenzene	ND	0.14	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
4-Nitrophenol	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Pentachlorophenol	ND	0.086	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Phenanthrene	ND	0.090	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Pyridine	ND	0.11	0.53		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 3:08:00 PM	25502
Surr: 2-Fluorophenol	57.7	0	28.3-102		%Rec	1	5/31/2016 3:08:00 PM	25502
Surr: Phenol-d5	59.6	0	35.7-103		%Rec	1	5/31/2016 3:08:00 PM	25502
Surr: 2,4,6-Tribromophenol	62.5	0	35.2-108		%Rec	1	5/31/2016 3:08:00 PM	25502
Surr: Nitrobenzene-d5	60.0		24-118		%Rec	1	5/31/2016 3:08:00 PM	25502
Surr: 2-Fluorobiphenyl	59.5		35.4-111		%Rec	1	5/31/2016 3:08:00 PM	25502
Surr: 4-Terphenyl-d14	42.9		15-91.7		%Rec	1	5/31/2016 3:08:00 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	1.98	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Toluene	1.36	0.211	1.75	J	µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Ethylbenzene	ND	0.235	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.294	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.297	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.289	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Naphthalene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1-Methylnaphthalene	ND	0.199	3.50		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
2-Methylnaphthalene	ND	0.460	3.50		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Acetone	15.3	0.518	8.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Bromobenzene	ND	0.178	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Bromodichloromethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Bromoform	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496

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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:55:00 PM

Lab ID: 1605999-010

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.315	2.62		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
2-Butanone	ND	0.631	8.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Carbon disulfide	ND	0.647	8.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Carbon tetrachloride	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Chlorobenzene	ND	0.201	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Chloroethane	ND	0.323	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Chloroform	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Chloromethane	ND	0.443	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
2-Chlorotoluene	ND	0.298	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
4-Chlorotoluene	ND	0.291	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
cis-1,2-DCE	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
cis-1,3-Dichloropropene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.186	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Dibromochloromethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Dibromomethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2-Dichlorobenzene	ND	0.255	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,3-Dichlorobenzene	ND	0.323	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,4-Dichlorobenzene	ND	0.327	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Dichlorodifluoromethane	ND	1.02	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1-Dichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1-Dichloroethene	ND	0.286	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2-Dichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,3-Dichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
2,2-Dichloropropane	ND	0.221	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1-Dichloropropene	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Hexachlorobutadiene	ND	0.399	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
2-Hexanone	ND	0.436	8.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Isopropylbenzene	ND	0.220	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
4-Isopropyltoluene	ND	0.328	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
4-Methyl-2-pentanone	ND	3.50	8.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Methylene chloride	ND	1.75	2.62		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
n-Butylbenzene	ND	0.426	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
n-Propylbenzene	ND	0.313	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
sec-Butylbenzene	ND	0.311	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Styrene	ND	0.224	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
tert-Butylbenzene	ND	0.256	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Tetrachloroethene (PCE)	ND	0.230	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496

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	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-13 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 1:55:00 PM

Lab ID: 1605999-010

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.177	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
trans-1,3-Dichloropropene	ND	0.212	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.423	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.531	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1,1-Trichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,1,2-Trichloroethane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Trichloroethene (TCE)	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Trichlorofluoromethane	ND	0.220	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
1,2,3-Trichloropropane	ND	1.75	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Vinyl chloride	ND	0.460	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Xylenes, Total	ND	0.697	1.75		µg/Kg-dry	1	5/25/2016 11:40:00 PM	25496
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	5/25/2016 11:40:00 PM	25496
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	1	5/25/2016 11:40:00 PM	25496
Surr: Dibromofluoromethane	93.0	0	70-130		%Rec	1	5/25/2016 11:40:00 PM	25496
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	5/25/2016 11:40:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	1.1	0.56	3.7	J	mg/Kg-dr	1	5/24/2016 8:09:48 PM	A34454
Surr: BFB	97.6	0	70-130		%Rec	1	5/24/2016 8:09:48 PM	A34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:10:00 PM

Lab ID: 1605999-011

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.0	11		mg/Kg-dr	1	5/25/2016 2:30:49 PM	25450
Motor Oil Range Organics (MRO)	ND	56	56		mg/Kg-dr	1	5/25/2016 2:30:49 PM	25450
Surr: DNOP	110	0	70-130		%Rec	1	5/25/2016 2:30:49 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	14	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.012	0.00065	0.038	J	mg/Kg-dr	1	6/7/2016 2:27:48 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.8	5.8		mg/Kg-dr	2	6/7/2016 4:05:25 PM	25680
Arsenic	1.4	0.85	2.9	J	mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Barium	280	0.056	0.12		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Beryllium	0.79	0.0054	0.17		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Cadmium	ND	0.074	0.12		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Chromium	8.5	0.14	0.35		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Cobalt	4.3	0.044	0.35		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Iron	14000	110	290		mg/Kg-dr	100	6/7/2016 2:45:18 PM	25680
Lead	4.8	0.20	0.29		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Manganese	350	0.10	0.23		mg/Kg-dr	2	6/7/2016 4:05:25 PM	25680
Nickel	7.5	0.13	0.58		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Vanadium	19	0.040	2.9		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
Zinc	15	0.66	2.9		mg/Kg-dr	1	6/7/2016 4:03:41 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Acenaphthylene	ND	0.095	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Aniline	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Anthracene	ND	0.078	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benz(a)anthracene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzo(a)pyrene	ND	0.089	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzoic acid	ND	0.097	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Benzyl alcohol	ND	0.091	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:10:00 PM

Lab ID: 1605999-011

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.086	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.095	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Carbazole	ND	0.079	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Chloro-3-methylphenol	ND	0.14	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Chloroaniline	ND	0.13	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Chloronaphthalene	ND	0.092	0.29		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Chlorophenol	ND	0.092	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Chrysene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Di-n-butyl phthalate	ND	0.087	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Dibenz(a,h)anthracene	ND	0.095	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Dibenzofuran	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
1,2-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
1,3-Dichlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
1,4-Dichlorobenzene	ND	0.099	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
3,3'-Dichlorobenzidine	ND	0.086	0.29		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.071	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4-Dinitrophenol	ND	0.078	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4-Dinitrotoluene	ND	0.10	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,6-Dinitrotoluene	ND	0.12	0.58		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Fluoranthene	ND	0.067	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Fluorene	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Hexachlorobenzene	ND	0.092	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Hexachloroethane	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.091	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
1-Methylnaphthalene	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Methylphenol	ND	0.098	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
3+4-Methylphenol	ND	0.085	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:10:00 PM

Lab ID: 1605999-011

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Nitroaniline	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Nitroaniline	ND	0.082	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2-Nitrophenol	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
4-Nitrophenol	ND	0.089	0.29		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Pentachlorophenol	ND	0.075	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Phenanthrene	ND	0.079	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Phenol	ND	0.088	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Pyrene	ND	0.088	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Pyridine	ND	0.093	0.47		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
2,4,6-Trichlorophenol	ND	0.097	0.23		mg/Kg-dr	1	5/31/2016 3:38:23 PM	25502
Surr: 2-Fluorophenol	58.5	0	28.3-102		%Rec	1	5/31/2016 3:38:23 PM	25502
Surr: Phenol-d5	65.8	0	35.7-103		%Rec	1	5/31/2016 3:38:23 PM	25502
Surr: 2,4,6-Tribromophenol	71.5	0	35.2-108		%Rec	1	5/31/2016 3:38:23 PM	25502
Surr: Nitrobenzene-d5	67.4		24-118		%Rec	1	5/31/2016 3:38:23 PM	25502
Surr: 2-Fluorobiphenyl	69.7		35.4-111		%Rec	1	5/31/2016 3:38:23 PM	25502
Surr: 4-Terphenyl-d14	49.2		15-91.7		%Rec	1	5/31/2016 3:38:23 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Toluene	ND	0.217	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Ethylbenzene	ND	0.242	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Methyl tert-butyl ether (MTBE)	ND	0.302	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2,4-Trimethylbenzene	ND	0.305	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,3,5-Trimethylbenzene	ND	0.297	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2-Dichloroethane (EDC)	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2-Dibromoethane (EDB)	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Naphthalene	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1-Methylnaphthalene	ND	0.205	3.60		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
2-Methylnaphthalene	ND	0.474	3.60		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Acetone	46.4	0.533	9.00		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Bromobenzene	ND	0.183	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Bromodichloromethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Bromoform	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:10:00 PM

Lab ID: 1605999-011

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.324	2.70		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
2-Butanone	5.95	0.649	9.00	J	µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Carbon disulfide	ND	0.666	9.00		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Carbon tetrachloride	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Chlorobenzene	ND	0.206	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Chloroethane	ND	0.332	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Chloroform	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Chloromethane	ND	0.456	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
2-Chlorotoluene	ND	0.306	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
4-Chlorotoluene	ND	0.299	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
cis-1,2-DCE	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
cis-1,3-Dichloropropene	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2-Dibromo-3-chloropropane	ND	0.192	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Dibromochloromethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Dibromomethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2-Dichlorobenzene	ND	0.262	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,3-Dichlorobenzene	ND	0.332	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,4-Dichlorobenzene	ND	0.337	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Dichlorodifluoromethane	ND	1.05	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1-Dichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1-Dichloroethene	ND	0.295	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2-Dichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,3-Dichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
2,2-Dichloropropane	ND	0.227	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1-Dichloropropene	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Hexachlorobutadiene	ND	0.410	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
2-Hexanone	ND	0.448	9.00		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Isopropylbenzene	ND	0.226	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
4-Isopropyltoluene	ND	0.338	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
4-Methyl-2-pentanone	ND	3.60	9.00		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Methylene chloride	ND	1.80	2.70		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
n-Butylbenzene	ND	0.438	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
n-Propylbenzene	ND	0.322	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
sec-Butylbenzene	ND	0.320	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Styrene	ND	0.230	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
tert-Butylbenzene	ND	0.263	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1,1,2-Tetrachloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1,2,2-Tetrachloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Tetrachloroethene (PCE)	ND	0.236	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:10:00 PM

Lab ID: 1605999-011

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.182	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
trans-1,3-Dichloropropene	ND	0.218	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2,3-Trichlorobenzene	ND	0.435	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2,4-Trichlorobenzene	ND	0.546	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1,1-Trichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,1,2-Trichloroethane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Trichloroethene (TCE)	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Trichlorofluoromethane	ND	0.226	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
1,2,3-Trichloropropane	ND	1.80	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Vinyl chloride	ND	0.473	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Xylenes, Total	ND	0.717	1.80		µg/Kg-dry	1	5/26/2016 12:05:00 AM	25496
Surr: 1,2-Dichloroethane-d4	98.5	0	70-130		%Rec	1	5/26/2016 12:05:00 AM	25496
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	5/26/2016 12:05:00 AM	25496
Surr: Dibromofluoromethane	90.8	0	70-130		%Rec	1	5/26/2016 12:05:00 AM	25496
Surr: Toluene-d8	98.6	0	70-130		%Rec	1	5/26/2016 12:05:00 AM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.76	0.55	3.6	J	mg/Kg-dr	1	5/24/2016 8:38:02 PM	A34454
Surr: BFB	96.6	0	70-130		%Rec	1	5/24/2016 8:38:02 PM	A34454

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:20:00 PM

Lab ID: 1605999-012

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	3.9	11		mg/Kg-dr	1	5/25/2016 2:52:32 PM	25450
Motor Oil Range Organics (MRO)	ND	54	54		mg/Kg-dr	1	5/25/2016 2:52:32 PM	25450
Surr: DNOP	105	0	70-130		%Rec	1	5/25/2016 2:52:32 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	13	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.010	0.00065	0.038	J	mg/Kg-dr	1	6/7/2016 2:29:35 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	2.1	1.4	2.9	J	mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Arsenic	1.5	0.85	2.9	J	mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Barium	160	0.056	0.12		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Beryllium	0.88	0.0054	0.17		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Cadmium	ND	0.074	0.12		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Chromium	9.1	0.14	0.35		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Cobalt	4.4	0.044	0.35		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Iron	15000	110	290		mg/Kg-dr	100	6/7/2016 2:46:48 PM	25680
Lead	3.2	0.20	0.29		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Manganese	270	0.051	0.12		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Nickel	7.8	0.13	0.58		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Selenium	ND	1.3	2.9		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Silver	ND	0.037	0.29		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Vanadium	19	0.040	2.9		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
Zinc	15	0.66	2.9		mg/Kg-dr	1	6/7/2016 4:07:19 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.098	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Acenaphthylene	ND	0.093	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Aniline	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Anthracene	ND	0.076	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Azobenzene	ND	0.14	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benz(a)anthracene	ND	0.098	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzo(a)pyrene	ND	0.086	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzo(b)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzo(g,h,i)perylene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzo(k)fluoranthene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzoic acid	ND	0.095	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Benzyl alcohol	ND	0.089	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Bis(2-chloroethoxy)methane	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:20:00 PM

Lab ID: 1605999-012

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.084	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.093	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Bromophenyl phenyl ether	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Butyl benzyl phthalate	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Carbazole	ND	0.077	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Chloro-3-methylphenol	ND	0.14	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Chloroaniline	ND	0.12	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Chloronaphthalene	ND	0.090	0.29		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Chlorophenol	ND	0.090	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Chlorophenyl phenyl ether	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Chrysene	ND	0.097	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Di-n-butyl phthalate	ND	0.085	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Di-n-octyl phthalate	ND	0.097	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Dibenz(a,h)anthracene	ND	0.092	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Dibenzofuran	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
1,2-Dichlorobenzene	ND	0.087	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
1,3-Dichlorobenzene	ND	0.088	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
1,4-Dichlorobenzene	ND	0.097	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
3,3'-Dichlorobenzidine	ND	0.084	0.29		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Diethyl phthalate	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Dimethyl phthalate	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4-Dichlorophenol	ND	0.11	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4-Dimethylphenol	ND	0.12	0.34		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.069	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4-Dinitrophenol	ND	0.076	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4-Dinitrotoluene	ND	0.10	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,6-Dinitrotoluene	ND	0.12	0.57		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Fluoranthene	ND	0.066	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Fluorene	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Hexachlorobenzene	ND	0.090	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Hexachlorobutadiene	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Hexachlorocyclopentadiene	ND	0.13	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Hexachloroethane	ND	0.098	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.089	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
1-Methylnaphthalene	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Methylnaphthalene	ND	0.14	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Methylphenol	ND	0.095	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
3+4-Methylphenol	ND	0.083	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:20:00 PM

Lab ID: 1605999-012

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
N-Nitrosodiphenylamine	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Naphthalene	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Nitroaniline	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
3-Nitroaniline	ND	0.10	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Nitroaniline	ND	0.080	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Nitrobenzene	ND	0.12	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2-Nitrophenol	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
4-Nitrophenol	ND	0.087	0.29		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Pentachlorophenol	ND	0.073	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Phenanthrene	ND	0.078	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Phenol	ND	0.086	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Pyrene	ND	0.086	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Pyridine	ND	0.090	0.46		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
1,2,4-Trichlorobenzene	ND	0.12	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4,5-Trichlorophenol	ND	0.11	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
2,4,6-Trichlorophenol	ND	0.095	0.23		mg/Kg-dr	1	5/31/2016 4:08:42 PM	25502
Surr: 2-Fluorophenol	55.1	0	28.3-102		%Rec	1	5/31/2016 4:08:42 PM	25502
Surr: Phenol-d5	58.9	0	35.7-103		%Rec	1	5/31/2016 4:08:42 PM	25502
Surr: 2,4,6-Tribromophenol	66.7	0	35.2-108		%Rec	1	5/31/2016 4:08:42 PM	25502
Surr: Nitrobenzene-d5	62.1		24-118		%Rec	1	5/31/2016 4:08:42 PM	25502
Surr: 2-Fluorobiphenyl	62.7		35.4-111		%Rec	1	5/31/2016 4:08:42 PM	25502
Surr: 4-Terphenyl-d14	44.0		15-91.7		%Rec	1	5/31/2016 4:08:42 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Toluene	0.260	0.241	2.00	J	µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Ethylbenzene	ND	0.268	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Methyl tert-butyl ether (MTBE)	ND	0.335	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2,4-Trimethylbenzene	ND	0.339	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,3,5-Trimethylbenzene	ND	0.330	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2-Dichloroethane (EDC)	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2-Dibromoethane (EDB)	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Naphthalene	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1-Methylnaphthalene	ND	0.227	3.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
2-Methylnaphthalene	ND	0.526	3.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Acetone	19.4	0.591	9.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Bromobenzene	ND	0.203	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Bromodichloromethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Bromoform	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496

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
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** NDD-10 (1.5-2')**Project:** North Drainage Ditch**Collection Date:** 5/19/2016 2:20:00 PM**Lab ID:** 1605999-012**Matrix:** SOIL**Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.360	3.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
2-Butanone	ND	0.720	9.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Carbon disulfide	ND	0.739	9.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Carbon tetrachloride	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Chlorobenzene	ND	0.229	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Chloroethane	ND	0.369	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Chloroform	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Chloromethane	ND	0.506	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
2-Chlorotoluene	ND	0.340	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
4-Chlorotoluene	ND	0.332	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
cis-1,2-DCE	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
cis-1,3-Dichloropropene	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2-Dibromo-3-chloropropane	ND	0.213	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Dibromochloromethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Dibromomethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2-Dichlorobenzene	ND	0.291	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,3-Dichlorobenzene	ND	0.369	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,4-Dichlorobenzene	ND	0.374	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Dichlorodifluoromethane	ND	1.17	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1-Dichloroethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1-Dichloroethene	ND	0.327	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2-Dichloropropane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,3-Dichloropropane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
2,2-Dichloropropane	ND	0.252	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1-Dichloropropene	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Hexachlorobutadiene	ND	0.455	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
2-Hexanone	ND	0.497	9.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Isopropylbenzene	ND	0.251	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
4-Isopropyltoluene	ND	0.375	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
4-Methyl-2-pentanone	ND	3.99	9.99		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Methylene chloride	ND	2.00	3.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
n-Butylbenzene	ND	0.486	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
n-Propylbenzene	ND	0.358	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
sec-Butylbenzene	ND	0.355	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Styrene	ND	0.255	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
tert-Butylbenzene	ND	0.292	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1,1,2-Tetrachloroethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1,2,2-Tetrachloroethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Tetrachloroethene (PCE)	ND	0.262	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-10 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 2:20:00 PM

Lab ID: 1605999-012

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.202	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
trans-1,3-Dichloropropene	ND	0.242	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2,3-Trichlorobenzene	ND	0.483	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2,4-Trichlorobenzene	ND	0.606	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1,1-Trichloroethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,1,2-Trichloroethane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Trichloroethene (TCE)	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Trichlorofluoromethane	ND	0.251	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
1,2,3-Trichloropropane	ND	2.00	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Vinyl chloride	ND	0.525	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Xylenes, Total	ND	0.796	2.00		µg/Kg-dry	1	5/26/2016 12:30:00 AM	25496
Surr: 1,2-Dichloroethane-d4	99.8	0	70-130		%Rec	1	5/26/2016 12:30:00 AM	25496
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	5/26/2016 12:30:00 AM	25496
Surr: Dibromofluoromethane	90.7	0	70-130		%Rec	1	5/26/2016 12:30:00 AM	25496
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	5/26/2016 12:30:00 AM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.61	0.55	3.7	J	mg/Kg-dr	1	5/25/2016 12:52:45 AM	B34454
Surr: BFB	95.2	0	70-130		%Rec	1	5/25/2016 12:52:45 AM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:15:00 PM

Lab ID: 1605999-013

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.1	11		mg/Kg-dr	1	5/25/2016 3:35:47 PM	25450
Motor Oil Range Organics (MRO)	ND	57	57		mg/Kg-dr	1	5/25/2016 3:35:47 PM	25450
Surr: DNOP	104	0	70-130		%Rec	1	5/25/2016 3:35:47 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	16	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.011	0.00067	0.039	J	mg/Kg-dr	1	6/7/2016 2:31:23 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	3.3	2.8	6.0	J	mg/Kg-dr	2	6/7/2016 4:20:13 PM	25680
Arsenic	1.4	0.87	3.0	J	mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Barium	410	0.12	0.24		mg/Kg-dr	2	6/7/2016 4:20:13 PM	25680
Beryllium	1.1	0.0055	0.18		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Cadmium	ND	0.076	0.12		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Chromium	11	0.15	0.36		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Cobalt	5.6	0.046	0.36		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Iron	18000	120	300		mg/Kg-dr	100	6/7/2016 2:48:18 PM	25680
Lead	6.3	0.21	0.30		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Manganese	440	0.11	0.24		mg/Kg-dr	2	6/7/2016 4:20:13 PM	25680
Nickel	10	0.14	0.60		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Vanadium	19	0.042	3.0		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
Zinc	18	0.68	3.0		mg/Kg-dr	1	6/7/2016 4:18:27 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Acenaphthylene	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Anthracene	ND	0.078	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Azobenzene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzo(a)pyrene	ND	0.089	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzo(g,h,i)perylene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzo(k)fluoranthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzoic acid	ND	0.098	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Benzyl alcohol	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:15:00 PM

Lab ID: 1605999-013

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.086	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.096	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Butyl benzyl phthalate	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Carbazole	ND	0.079	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Chloro-3-methylphenol	ND	0.14	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Chloroaniline	ND	0.13	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Chloronaphthalene	ND	0.093	0.29		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Chlorophenol	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Chlorophenyl phenyl ether	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Di-n-butyl phthalate	ND	0.088	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Dibenz(a,h)anthracene	ND	0.095	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
1,2-Dichlorobenzene	ND	0.090	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
1,3-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
1,4-Dichlorobenzene	ND	0.099	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
3,3'-Dichlorobenzidine	ND	0.087	0.29		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.071	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4-Dinitrophenol	ND	0.078	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,6-Dinitrotoluene	ND	0.12	0.59		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Fluoranthene	ND	0.068	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Hexachlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Hexachlorocyclopentadiene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Methylphenol	ND	0.098	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
3+4-Methylphenol	ND	0.085	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:15:00 PM

Lab ID: 1605999-013

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
N-Nitrosodiphenylamine	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
3-Nitroaniline	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Nitroaniline	ND	0.083	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
4-Nitrophenol	ND	0.090	0.29		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Pentachlorophenol	ND	0.076	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Phenanthrene	ND	0.080	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Phenol	ND	0.089	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Pyrene	ND	0.089	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Pyridine	ND	0.093	0.47		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
2,4,6-Trichlorophenol	ND	0.098	0.24		mg/Kg-dr	1	5/31/2016 4:39:04 PM	25502
Surr: 2-Fluorophenol	41.3	0	28.3-102		%Rec	1	5/31/2016 4:39:04 PM	25502
Surr: Phenol-d5	44.3	0	35.7-103		%Rec	1	5/31/2016 4:39:04 PM	25502
Surr: 2,4,6-Tribromophenol	51.6	0	35.2-108		%Rec	1	5/31/2016 4:39:04 PM	25502
Surr: Nitrobenzene-d5	46.0		24-118		%Rec	1	5/31/2016 4:39:04 PM	25502
Surr: 2-Fluorobiphenyl	50.7		35.4-111		%Rec	1	5/31/2016 4:39:04 PM	25502
Surr: 4-Terphenyl-d14	38.6		15-91.7		%Rec	1	5/31/2016 4:39:04 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Toluene	0.915	0.213	1.76	J	µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Ethylbenzene	ND	0.237	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.296	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.298	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.290	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Naphthalene	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1-Methylnaphthalene	ND	0.200	3.52		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
2-Methylnaphthalene	ND	0.463	3.52		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Acetone	9.06	0.521	8.80		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Bromobenzene	ND	0.179	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Bromodichloromethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Bromoform	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:15:00 PM

Lab ID: 1605999-013

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.317	2.64		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
2-Butanone	ND	0.634	8.80		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Carbon disulfide	ND	0.651	8.80		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Carbon tetrachloride	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Chlorobenzene	ND	0.202	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Chloroethane	ND	0.325	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Chloroform	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Chloromethane	ND	0.446	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
2-Chlorotoluene	ND	0.299	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
4-Chlorotoluene	ND	0.293	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
cis-1,2-DCE	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
cis-1,3-Dichloropropene	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.187	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Dibromochloromethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Dibromomethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2-Dichlorobenzene	ND	0.256	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,3-Dichlorobenzene	ND	0.325	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,4-Dichlorobenzene	ND	0.329	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Dichlorodifluoromethane	ND	1.03	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1-Dichloroethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1-Dichloroethene	ND	0.288	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2-Dichloropropane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,3-Dichloropropane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
2,2-Dichloropropane	ND	0.222	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1-Dichloropropene	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Hexachlorobutadiene	ND	0.401	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
2-Hexanone	ND	0.438	8.80		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Isopropylbenzene	ND	0.221	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
4-Isopropyltoluene	ND	0.330	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
4-Methyl-2-pentanone	ND	3.52	8.80		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Methylene chloride	ND	1.76	2.64		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
n-Butylbenzene	ND	0.429	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
n-Propylbenzene	ND	0.315	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
sec-Butylbenzene	ND	0.312	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Styrene	ND	0.225	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
tert-Butylbenzene	ND	0.257	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Tetrachloroethene (PCE)	ND	0.231	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:15:00 PM

Lab ID: 1605999-013

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.178	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
trans-1,3-Dichloropropene	ND	0.213	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.426	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.534	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1,1-Trichloroethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,1,2-Trichloroethane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Trichloroethene (TCE)	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Trichlorofluoromethane	ND	0.221	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
1,2,3-Trichloropropane	ND	1.76	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Vinyl chloride	ND	0.463	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Xylenes, Total	ND	0.702	1.76		µg/Kg-dry	1	5/26/2016 3:14:00 PM	25496
Surr: 1,2-Dichloroethane-d4	95.7	0	70-130		%Rec	1	5/26/2016 3:14:00 PM	25496
Surr: 4-Bromofluorobenzene	109	0	70-130		%Rec	1	5/26/2016 3:14:00 PM	25496
Surr: Dibromofluoromethane	87.6	0	70-130		%Rec	1	5/26/2016 3:14:00 PM	25496
Surr: Toluene-d8	101	0	70-130		%Rec	1	5/26/2016 3:14:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.73	0.53	3.5	J	mg/Kg-dr	1	5/25/2016 1:21:02 AM	B34454
Surr: BFB	101	0	70-130		%Rec	1	5/25/2016 1:21:02 AM	B34454

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:20:00 PM

Lab ID: 1605999-014

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	18	3.7	10		mg/Kg-dr	1	5/25/2016 4:19:33 PM	25450
Motor Oil Range Organics (MRO)	ND	52	52		mg/Kg-dr	1	5/25/2016 4:19:33 PM	25450
Surr: DNOP	107	0	70-130		%Rec	1	5/25/2016 4:19:33 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	8.3	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0032	0.00061	0.036	J	mg/Kg-dr	1	6/7/2016 2:33:12 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	1.3	2.7		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Arsenic	1.4	0.79	2.7	J	mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Barium	270	0.053	0.11		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Beryllium	0.42	0.0050	0.16		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Cadmium	ND	0.069	0.11		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Chromium	3.3	0.13	0.32		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Cobalt	2.4	0.041	0.32		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Iron	7300	110	270		mg/Kg-dr	100	6/7/2016 2:49:47 PM	25680
Lead	3.1	0.19	0.27		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Manganese	1100	0.24	0.54		mg/Kg-dr	5	6/9/2016 11:22:38 AM	25680
Nickel	3.8	0.12	0.54		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Selenium	ND	1.2	2.7		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Silver	ND	0.034	0.27		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Vanadium	9.1	0.038	2.7		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
Zinc	7.0	0.62	2.7		mg/Kg-dr	1	6/7/2016 4:21:59 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.093	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Acenaphthylene	ND	0.088	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Aniline	ND	0.10	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Anthracene	ND	0.072	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Azobenzene	ND	0.13	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benz(a)anthracene	ND	0.093	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzo(a)pyrene	ND	0.082	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzo(b)fluoranthene	ND	0.098	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzo(g,h,i)perylene	ND	0.096	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzo(k)fluoranthene	ND	0.096	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzoic acid	ND	0.090	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Benzyl alcohol	ND	0.085	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Bis(2-chloroethoxy)methane	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:20:00 PM

Lab ID: 1605999-014

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.080	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.097	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.088	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Bromophenyl phenyl ether	ND	0.10	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Butyl benzyl phthalate	ND	0.096	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Carbazole	ND	0.073	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Chloro-3-methylphenol	ND	0.13	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Chloroaniline	ND	0.12	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Chloronaphthalene	ND	0.085	0.27		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Chlorophenol	ND	0.085	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Chlorophenyl phenyl ether	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Chrysene	ND	0.092	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Di-n-butyl phthalate	ND	0.081	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Di-n-octyl phthalate	ND	0.092	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Dibenz(a,h)anthracene	ND	0.088	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Dibenzofuran	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
1,2-Dichlorobenzene	ND	0.083	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
1,3-Dichlorobenzene	ND	0.084	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
1,4-Dichlorobenzene	ND	0.092	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
3,3'-Dichlorobenzidine	ND	0.080	0.27		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Diethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Dimethyl phthalate	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4-Dichlorophenol	ND	0.10	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4-Dimethylphenol	ND	0.12	0.33		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.066	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4-Dinitrophenol	ND	0.072	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4-Dinitrotoluene	ND	0.097	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,6-Dinitrotoluene	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Fluoranthene	ND	0.062	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Fluorene	ND	0.099	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Hexachlorobenzene	ND	0.086	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Hexachlorobutadiene	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Hexachlorocyclopentadiene	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Hexachloroethane	ND	0.093	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.085	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
1-Methylnaphthalene	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Methylnaphthalene	ND	0.13	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Methylphenol	ND	0.091	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
3+4-Methylphenol	ND	0.079	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502

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

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:20:00 PM

Lab ID: 1605999-014

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.10	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
N-Nitrosodiphenylamine	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Naphthalene	ND	0.10	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Nitroaniline	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
3-Nitroaniline	ND	0.096	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Nitroaniline	ND	0.076	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Nitrobenzene	ND	0.11	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2-Nitrophenol	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
4-Nitrophenol	ND	0.083	0.27		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Pentachlorophenol	ND	0.070	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Phenanthrene	ND	0.074	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Phenol	ND	0.082	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Pyrene	ND	0.082	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Pyridine	ND	0.086	0.43		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
1,2,4-Trichlorobenzene	ND	0.12	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4,5-Trichlorophenol	ND	0.11	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
2,4,6-Trichlorophenol	ND	0.090	0.22		mg/Kg-dr	1	5/31/2016 5:09:25 PM	25502
Surr: 2-Fluorophenol	46.6	0	28.3-102		%Rec	1	5/31/2016 5:09:25 PM	25502
Surr: Phenol-d5	48.5	0	35.7-103		%Rec	1	5/31/2016 5:09:25 PM	25502
Surr: 2,4,6-Tribromophenol	62.0	0	35.2-108		%Rec	1	5/31/2016 5:09:25 PM	25502
Surr: Nitrobenzene-d5	57.9		24-118		%Rec	1	5/31/2016 5:09:25 PM	25502
Surr: 2-Fluorobiphenyl	58.5		35.4-111		%Rec	1	5/31/2016 5:09:25 PM	25502
Surr: 4-Terphenyl-d14	41.4		15-91.7		%Rec	1	5/31/2016 5:09:25 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Toluene	0.396	0.266	2.20	J	µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Ethylbenzene	ND	0.295	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.369	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2,4-Trimethylbenzene	0.572	0.373	2.20	J	µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.363	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Naphthalene	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1-Methylnaphthalene	ND	0.250	4.40		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
2-Methylnaphthalene	ND	0.579	4.40		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Acetone	84.8	0.651	11.0		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Bromobenzene	ND	0.224	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Bromodichloromethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Bromoform	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:20:00 PM

Lab ID: 1605999-014

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.396	3.30		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
2-Butanone	12.9	0.793	11.0		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Carbon disulfide	ND	0.813	11.0		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Carbon tetrachloride	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Chlorobenzene	ND	0.252	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Chloroethane	ND	0.406	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Chloroform	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Chloromethane	ND	0.557	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
2-Chlorotoluene	ND	0.374	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
4-Chlorotoluene	ND	0.365	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
cis-1,2-DCE	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
cis-1,3-Dichloropropene	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.234	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Dibromochloromethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Dibromomethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2-Dichlorobenzene	ND	0.320	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,3-Dichlorobenzene	ND	0.406	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,4-Dichlorobenzene	ND	0.412	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Dichlorodifluoromethane	ND	1.28	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1-Dichloroethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1-Dichloroethene	ND	0.360	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2-Dichloropropane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,3-Dichloropropane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
2,2-Dichloropropane	ND	0.278	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1-Dichloropropene	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Hexachlorobutadiene	ND	0.501	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
2-Hexanone	ND	0.548	11.0		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Isopropylbenzene	ND	0.277	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
4-Isopropyltoluene	ND	0.412	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
4-Methyl-2-pentanone	44.7	4.40	11.0		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Methylene chloride	ND	2.20	3.30		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
n-Butylbenzene	ND	0.535	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
n-Propylbenzene	ND	0.394	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
sec-Butylbenzene	ND	0.390	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Styrene	ND	0.281	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
tert-Butylbenzene	ND	0.321	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Tetrachloroethene (PCE)	ND	0.289	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-12 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:20:00 PM

Lab ID: 1605999-014

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.222	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
trans-1,3-Dichloropropene	ND	0.266	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.532	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.667	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1,1-Trichloroethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,1,2-Trichloroethane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Trichloroethene (TCE)	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Trichlorofluoromethane	ND	0.276	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
1,2,3-Trichloropropane	ND	2.20	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Vinyl chloride	ND	0.578	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Xylenes, Total	ND	0.876	2.20		µg/Kg-dry	1	5/26/2016 3:39:00 PM	25496
Surr: 1,2-Dichloroethane-d4	98.7	0	70-130		%Rec	1	5/26/2016 3:39:00 PM	25496
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	5/26/2016 3:39:00 PM	25496
Surr: Dibromofluoromethane	88.6	0	70-130		%Rec	1	5/26/2016 3:39:00 PM	25496
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	5/26/2016 3:39:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.82	0.61	4.1	J	mg/Kg-dr	1	5/25/2016 1:49:21 AM	B34454
Surr: BFB	97.1	0	70-130		%Rec	1	5/25/2016 1:49:21 AM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:35:00 PM

Lab ID: 1605999-015

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.6	13		mg/Kg-dr	1	5/25/2016 4:41:22 PM	25450
Motor Oil Range Organics (MRO)	ND	64	64		mg/Kg-dr	1	5/25/2016 4:41:22 PM	25450
Surr: DNOP	106	0	70-130		%Rec	1	5/25/2016 4:41:22 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	23	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0088	0.00073	0.043	J	mg/Kg-dr	1	6/7/2016 2:35:01 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	5.4	3.1	6.5	J	mg/Kg-dr	2	6/7/2016 4:27:25 PM	25680
Arsenic	1.7	0.95	3.2	J	mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Barium	400	0.13	0.26		mg/Kg-dr	2	6/7/2016 4:27:25 PM	25680
Beryllium	1.2	0.0060	0.19		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Cadmium	ND	0.082	0.13		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Chromium	12	0.16	0.39		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Cobalt	5.9	0.049	0.39		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Iron	20000	130	320		mg/Kg-dr	100	6/7/2016 2:51:19 PM	25680
Lead	5.4	0.23	0.32		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Manganese	400	0.11	0.26		mg/Kg-dr	2	6/7/2016 4:27:25 PM	25680
Nickel	12	0.15	0.65		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Selenium	ND	1.4	3.2		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Silver	ND	0.041	0.32		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Vanadium	19	0.045	3.2		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
Zinc	19	0.74	3.2		mg/Kg-dr	1	6/7/2016 4:25:38 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Acenaphthylene	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Aniline	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Anthracene	ND	0.085	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Azobenzene	ND	0.16	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benz(a)anthracene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzo(a)pyrene	ND	0.097	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzoic acid	ND	0.11	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Benzyl alcohol	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:35:00 PM

Lab ID: 1605999-015

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.094	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.10	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Bromophenyl phenyl ether	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Butyl benzyl phthalate	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Carbazole	ND	0.086	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Chloro-3-methylphenol	ND	0.15	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Chloroaniline	ND	0.14	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Chloronaphthalene	ND	0.10	0.32		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Chlorophenol	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Chrysene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Di-n-butyl phthalate	ND	0.096	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Di-n-octyl phthalate	ND	0.11	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Dibenz(a,h)anthracene	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Dibenzofuran	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
1,2-Dichlorobenzene	ND	0.098	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
1,3-Dichlorobenzene	ND	0.099	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
3,3'-Dichlorobenzidine	ND	0.094	0.32		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Diethyl phthalate	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Dimethyl phthalate	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4-Dichlorophenol	ND	0.12	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4-Dimethylphenol	ND	0.14	0.38		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.077	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4-Dinitrophenol	ND	0.085	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.64		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Fluoranthene	ND	0.074	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Fluorene	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Hexachlorobenzene	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Hexachlorobutadiene	ND	0.14	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Hexachloroethane	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
1-Methylnaphthalene	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Methylnaphthalene	ND	0.15	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Methylphenol	ND	0.11	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
3+4-Methylphenol	ND	0.093	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:35:00 PM

Lab ID: 1605999-015

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Naphthalene	ND	0.12	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Nitroaniline	ND	0.14	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
3-Nitroaniline	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Nitroaniline	ND	0.090	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Nitrobenzene	ND	0.13	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2-Nitrophenol	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
4-Nitrophenol	ND	0.098	0.32		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Pentachlorophenol	ND	0.082	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Phenanthrene	ND	0.087	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Phenol	ND	0.096	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Pyrene	ND	0.097	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Pyridine	ND	0.10	0.51		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.26		mg/Kg-dr	1	5/31/2016 5:39:37 PM	25502
Surr: 2-Fluorophenol	49.5	0	28.3-102		%Rec	1	5/31/2016 5:39:37 PM	25502
Surr: Phenol-d5	53.9	0	35.7-103		%Rec	1	5/31/2016 5:39:37 PM	25502
Surr: 2,4,6-Tribromophenol	60.5	0	35.2-108		%Rec	1	5/31/2016 5:39:37 PM	25502
Surr: Nitrobenzene-d5	55.8		24-118		%Rec	1	5/31/2016 5:39:37 PM	25502
Surr: 2-Fluorobiphenyl	57.3		35.4-111		%Rec	1	5/31/2016 5:39:37 PM	25502
Surr: 4-Terphenyl-d14	46.3		15-91.7		%Rec	1	5/31/2016 5:39:37 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Toluene	0.476	0.240	1.98	J	µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Ethylbenzene	ND	0.267	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.333	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.337	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.327	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Naphthalene	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1-Methylnaphthalene	ND	0.226	3.97		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
2-Methylnaphthalene	ND	0.522	3.97		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Acetone	35.9	0.587	9.92		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Bromobenzene	ND	0.202	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Bromodichloromethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Bromoform	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** NDD-7 (0-0.5')**Project:** North Drainage Ditch**Collection Date:** 5/19/2016 3:35:00 PM**Lab ID:** 1605999-015**Matrix:** SOIL**Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.357	2.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
2-Butanone	3.01	0.715	9.92	J	µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Carbon disulfide	ND	0.734	9.92		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Carbon tetrachloride	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Chlorobenzene	ND	0.228	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Chloroethane	ND	0.366	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Chloroform	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Chloromethane	ND	0.503	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
2-Chlorotoluene	ND	0.338	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
4-Chlorotoluene	ND	0.330	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
cis-1,2-DCE	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
cis-1,3-Dichloropropene	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.211	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Dibromochloromethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Dibromomethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2-Dichlorobenzene	ND	0.289	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,3-Dichlorobenzene	ND	0.367	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,4-Dichlorobenzene	ND	0.371	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Dichlorodifluoromethane	ND	1.16	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1-Dichloroethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1-Dichloroethene	ND	0.325	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2-Dichloropropane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,3-Dichloropropane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
2,2-Dichloropropane	ND	0.251	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1-Dichloropropene	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Hexachlorobutadiene	ND	0.452	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
2-Hexanone	ND	0.494	9.92		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Isopropylbenzene	ND	0.250	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
4-Isopropyltoluene	ND	0.372	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
4-Methyl-2-pentanone	ND	3.97	9.92		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Methylene chloride	ND	1.98	2.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
n-Butylbenzene	ND	0.483	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
n-Propylbenzene	ND	0.355	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
sec-Butylbenzene	ND	0.352	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Styrene	ND	0.254	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
tert-Butylbenzene	ND	0.290	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Tetrachloroethene (PCE)	ND	0.261	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:35:00 PM

Lab ID: 1605999-015

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.200	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
trans-1,3-Dichloropropene	ND	0.240	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.480	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.602	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1,1-Trichloroethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,1,2-Trichloroethane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Trichloroethene (TCE)	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Trichlorofluoromethane	ND	0.249	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
1,2,3-Trichloropropane	ND	1.98	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Vinyl chloride	ND	0.522	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Xylenes, Total	ND	0.791	1.98		µg/Kg-dry	1	5/26/2016 4:04:00 PM	25496
Surr: 1,2-Dichloroethane-d4	95.1	0	70-130		%Rec	1	5/26/2016 4:04:00 PM	25496
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	5/26/2016 4:04:00 PM	25496
Surr: Dibromofluoromethane	86.3	0	70-130		%Rec	1	5/26/2016 4:04:00 PM	25496
Surr: Toluene-d8	97.8	0	70-130		%Rec	1	5/26/2016 4:04:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.61	4.1		mg/Kg-dr	1	5/25/2016 2:17:39 AM	B34454
Surr: BFB	96.5	0	70-130		%Rec	1	5/25/2016 2:17:39 AM	B34454

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	Page 73 of 159
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:45:00 PM

Lab ID: 1605999-016

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.5	13		mg/Kg-dr	1	5/25/2016 5:03:13 PM	25450
Motor Oil Range Organics (MRO)	ND	63	63		mg/Kg-dr	1	5/25/2016 5:03:13 PM	25450
Surr: DNOP	105	0	70-130		%Rec	1	5/25/2016 5:03:13 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	25	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0079	0.00073	0.043	J	mg/Kg-dr	1	6/7/2016 2:36:50 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	5.6	3.1	6.6	J	mg/Kg-dr	2	6/7/2016 4:31:07 PM	25680
Arsenic	1.2	0.96	3.3	J	mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Barium	490	0.13	0.26		mg/Kg-dr	2	6/7/2016 4:31:07 PM	25680
Beryllium	1.2	0.0061	0.20		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Cadmium	ND	0.084	0.13		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Chromium	12	0.16	0.40		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Cobalt	5.9	0.050	0.40		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Iron	20000	130	330		mg/Kg-dr	100	6/7/2016 2:52:49 PM	25680
Lead	4.7	0.23	0.33		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Manganese	500	0.12	0.26		mg/Kg-dr	2	6/7/2016 4:31:07 PM	25680
Nickel	11	0.15	0.66		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Selenium	ND	1.4	3.3		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Silver	ND	0.042	0.33		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Vanadium	21	0.046	3.3		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
Zinc	21	0.75	3.3		mg/Kg-dr	1	6/7/2016 4:29:22 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Anthracene	ND	0.089	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benz(a)anthracene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzoic acid	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Bis(2-chloroethoxy)methane	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502

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
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:45:00 PM

Lab ID: 1605999-016

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.098	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Carbazole	ND	0.090	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Chloroaniline	ND	0.15	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Chloronaphthalene	ND	0.11	0.33		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Di-n-butyl phthalate	ND	0.10	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Di-n-octyl phthalate	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
3,3'-Dichlorobenzidine	ND	0.098	0.33		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4-Dichlorophenol	ND	0.12	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4-Dimethylphenol	ND	0.15	0.40		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.081	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4-Dinitrophenol	ND	0.089	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.67		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Fluoranthene	ND	0.077	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Fluorene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Hexachloroethane	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
1-Methylnaphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Methylphenol	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
3+4-Methylphenol	ND	0.097	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:45:00 PM

Lab ID: 1605999-016

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Nitroaniline	ND	0.094	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Nitrobenzene	ND	0.14	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
4-Nitrophenol	ND	0.10	0.33		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Pentachlorophenol	ND	0.086	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Phenanthrene	ND	0.091	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Pyridine	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
1,2,4-Trichlorobenzene	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:09:56 PM	25502
Surr: 2-Fluorophenol	46.4	0	28.3-102		%Rec	1	5/31/2016 6:09:56 PM	25502
Surr: Phenol-d5	52.8	0	35.7-103		%Rec	1	5/31/2016 6:09:56 PM	25502
Surr: 2,4,6-Tribromophenol	59.0	0	35.2-108		%Rec	1	5/31/2016 6:09:56 PM	25502
Surr: Nitrobenzene-d5	55.3		24-118		%Rec	1	5/31/2016 6:09:56 PM	25502
Surr: 2-Fluorobiphenyl	54.3		35.4-111		%Rec	1	5/31/2016 6:09:56 PM	25502
Surr: 4-Terphenyl-d14	44.3		15-91.7		%Rec	1	5/31/2016 6:09:56 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	2.47	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Toluene	0.797	0.235	1.94	J	µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Ethylbenzene	ND	0.261	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.327	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2,4-Trimethylbenzene	0.350	0.330	1.94	J	µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.321	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Naphthalene	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1-Methylnaphthalene	ND	0.221	3.89		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
2-Methylnaphthalene	ND	0.512	3.89		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Acetone	33.2	0.576	9.72		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Bromobenzene	ND	0.198	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Bromodichloromethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Bromoform	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:45:00 PM

Lab ID: 1605999-016

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.350	2.92		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
2-Butanone	3.34	0.701	9.72	J	µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Carbon disulfide	ND	0.719	9.72		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Carbon tetrachloride	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Chlorobenzene	ND	0.223	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Chloroethane	ND	0.359	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Chloroform	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Chloromethane	ND	0.493	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
2-Chlorotoluene	ND	0.331	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
4-Chlorotoluene	ND	0.323	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
cis-1,2-DCE	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
cis-1,3-Dichloropropene	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.207	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Dibromochloromethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Dibromomethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2-Dichlorobenzene	ND	0.283	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,3-Dichlorobenzene	ND	0.359	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,4-Dichlorobenzene	ND	0.364	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Dichlorodifluoromethane	ND	1.14	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1-Dichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1-Dichloroethene	ND	0.318	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2-Dichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,3-Dichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
2,2-Dichloropropane	ND	0.246	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1-Dichloropropene	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Hexachlorobutadiene	ND	0.443	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
2-Hexanone	ND	0.484	9.72		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Isopropylbenzene	ND	0.245	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
4-Isopropyltoluene	ND	0.365	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
4-Methyl-2-pentanone	ND	3.89	9.72		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Methylene chloride	ND	1.94	2.92		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
n-Butylbenzene	ND	0.474	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
n-Propylbenzene	ND	0.348	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
sec-Butylbenzene	ND	0.345	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Styrene	ND	0.249	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
tert-Butylbenzene	ND	0.284	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Tetrachloroethene (PCE)	ND	0.256	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-7 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 3:45:00 PM

Lab ID: 1605999-016

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.196	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
trans-1,3-Dichloropropene	ND	0.235	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.471	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.590	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1,1-Trichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,1,2-Trichloroethane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Trichloroethene (TCE)	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Trichlorofluoromethane	ND	0.244	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
1,2,3-Trichloropropane	ND	1.94	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Vinyl chloride	ND	0.512	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Xylenes, Total	ND	0.775	1.94		µg/Kg-dry	1	5/26/2016 4:29:00 PM	25496
Surr: 1,2-Dichloroethane-d4	95.7	0	70-130		%Rec	1	5/26/2016 4:29:00 PM	25496
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	5/26/2016 4:29:00 PM	25496
Surr: Dibromofluoromethane	86.9	0	70-130		%Rec	1	5/26/2016 4:29:00 PM	25496
Surr: Toluene-d8	97.6	0	70-130		%Rec	1	5/26/2016 4:29:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.64	0.56	3.7	J	mg/Kg-dr	1	5/25/2016 2:46:01 AM	B34454
Surr: BFB	98.1	0	70-130		%Rec	1	5/25/2016 2:46:01 AM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:10:00 PM

Lab ID: 1605999-017

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.6	13		mg/Kg-dr	1	5/25/2016 5:25:04 PM	25450
Motor Oil Range Organics (MRO)	ND	64	64		mg/Kg-dr	1	5/25/2016 5:25:04 PM	25450
Surr: DNOP	108	0	70-130		%Rec	1	5/25/2016 5:25:04 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	28	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.13	0.00079	0.046		mg/Kg-dr	1	6/7/2016 2:38:41 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	3.5	3.3	6.9	J	mg/Kg-dr	2	6/7/2016 4:42:21 PM	25680
Arsenic	4.9	1.0	3.5		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Barium	490	0.13	0.28		mg/Kg-dr	2	6/7/2016 4:42:21 PM	25680
Beryllium	1.1	0.0064	0.21		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Cadmium	ND	0.088	0.14		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Chromium	17	0.17	0.42		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Cobalt	6.2	0.053	0.42		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Iron	17000	140	350		mg/Kg-dr	100	6/7/2016 2:54:19 PM	25680
Lead	13	0.24	0.35		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Manganese	510	0.12	0.28		mg/Kg-dr	2	6/7/2016 4:42:21 PM	25680
Nickel	20	0.16	0.69		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Selenium	ND	1.5	3.5		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Silver	ND	0.044	0.35		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Vanadium	29	0.048	3.5		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
Zinc	55	0.79	3.5		mg/Kg-dr	1	6/7/2016 4:33:02 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Anthracene	ND	0.091	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Azobenzene	ND	0.17	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benz(a)anthracene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzoic acid	ND	0.11	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Benzyl alcohol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Bis(2-chloroethoxy)methane	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502

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
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:10:00 PM

Lab ID: 1605999-017

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Carbazole	ND	0.093	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Chloroaniline	ND	0.15	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Chloronaphthalene	ND	0.11	0.34		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Chlorophenyl phenyl ether	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Chrysene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Di-n-butyl phthalate	ND	0.10	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Di-n-octyl phthalate	ND	0.12	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Dibenzofuran	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
1,2-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
1,3-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
1,4-Dichlorobenzene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
3,3'-Dichlorobenzidine	ND	0.10	0.34		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4-Dichlorophenol	ND	0.13	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4-Dimethylphenol	ND	0.15	0.41		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.083	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4-Dinitrophenol	ND	0.091	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,6-Dinitrotoluene	ND	0.15	0.69		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Fluoranthene	ND	0.079	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Fluorene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Hexachlorocyclopentadiene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Hexachloroethane	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
1-Methylnaphthalene	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Methylnaphthalene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Methylphenol	ND	0.11	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
3+4-Methylphenol	ND	0.099	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:10:00 PM

Lab ID: 1605999-017

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Naphthalene	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Nitroaniline	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Nitroaniline	ND	0.097	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Nitrobenzene	ND	0.14	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2-Nitrophenol	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
4-Nitrophenol	ND	0.10	0.34		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Pentachlorophenol	ND	0.088	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Phenanthrene	ND	0.093	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Pyridine	ND	0.11	0.55		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
1,2,4-Trichlorobenzene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4,5-Trichlorophenol	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 6:40:18 PM	25502
Surr: 2-Fluorophenol	50.5	0	28.3-102		%Rec	1	5/31/2016 6:40:18 PM	25502
Surr: Phenol-d5	56.9	0	35.7-103		%Rec	1	5/31/2016 6:40:18 PM	25502
Surr: 2,4,6-Tribromophenol	61.3	0	35.2-108		%Rec	1	5/31/2016 6:40:18 PM	25502
Surr: Nitrobenzene-d5	56.1		24-118		%Rec	1	5/31/2016 6:40:18 PM	25502
Surr: 2-Fluorobiphenyl	60.8		35.4-111		%Rec	1	5/31/2016 6:40:18 PM	25502
Surr: 4-Terphenyl-d14	45.6		15-91.7		%Rec	1	5/31/2016 6:40:18 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Toluene	0.546	0.281	2.32	J	µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Ethylbenzene	ND	0.312	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.390	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2,4-Trimethylbenzene	ND	0.394	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.383	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2-Dichloroethane (EDC)	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2-Dibromoethane (EDB)	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Naphthalene	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1-Methylnaphthalene	ND	0.264	4.64		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
2-Methylnaphthalene	ND	0.611	4.64		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Acetone	48.8	0.687	11.6		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Bromobenzene	ND	0.236	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Bromodichloromethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Bromoform	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496

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

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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:10:00 PM

Lab ID: 1605999-017

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.418	3.48		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
2-Butanone	3.63	0.837	11.6	J	µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Carbon disulfide	ND	0.859	11.6		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Carbon tetrachloride	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Chlorobenzene	ND	0.266	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Chloroethane	ND	0.428	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Chloroform	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Chloromethane	ND	0.588	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
2-Chlorotoluene	ND	0.395	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
4-Chlorotoluene	ND	0.386	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
cis-1,2-DCE	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
cis-1,3-Dichloropropene	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.247	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Dibromochloromethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Dibromomethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2-Dichlorobenzene	ND	0.338	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,3-Dichlorobenzene	ND	0.429	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,4-Dichlorobenzene	ND	0.435	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Dichlorodifluoromethane	ND	1.36	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1-Dichloroethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1-Dichloroethene	ND	0.380	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2-Dichloropropane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,3-Dichloropropane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
2,2-Dichloropropane	ND	0.293	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1-Dichloropropene	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Hexachlorobutadiene	ND	0.529	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
2-Hexanone	ND	0.578	11.6		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Isopropylbenzene	ND	0.292	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
4-Isopropyltoluene	ND	0.436	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
4-Methyl-2-pentanone	ND	4.64	11.6		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Methylene chloride	ND	2.32	3.48		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
n-Butylbenzene	ND	0.565	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
n-Propylbenzene	ND	0.416	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
sec-Butylbenzene	ND	0.412	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Styrene	ND	0.297	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
tert-Butylbenzene	ND	0.339	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Tetrachloroethene (PCE)	ND	0.305	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:10:00 PM

Lab ID: 1605999-017

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.235	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
trans-1,3-Dichloropropene	ND	0.281	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.562	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.704	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1,1-Trichloroethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,1,2-Trichloroethane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Trichloroethene (TCE)	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Trichlorofluoromethane	ND	0.292	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
1,2,3-Trichloropropane	ND	2.32	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Vinyl chloride	ND	0.611	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Xylenes, Total	ND	0.925	2.32		µg/Kg-dry	1	5/26/2016 4:54:00 PM	25496
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	5/26/2016 4:54:00 PM	25496
Surr: 4-Bromofluorobenzene	110	0	70-130		%Rec	1	5/26/2016 4:54:00 PM	25496
Surr: Dibromofluoromethane	89.6	0	70-130		%Rec	1	5/26/2016 4:54:00 PM	25496
Surr: Toluene-d8	98.6	0	70-130		%Rec	1	5/26/2016 4:54:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	0.71	0.66	4.4	J	mg/Kg-dr	1	5/25/2016 3:14:14 AM	B34454
Surr: BFB	94.9	0	70-130		%Rec	1	5/25/2016 3:14:14 AM	B34454

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:20:00 PM

Lab ID: 1605999-018

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	6800	46	130		mg/Kg-dr	10	5/26/2016 3:35:10 PM	25450
Motor Oil Range Organics (MRO)	ND	640	640		mg/Kg-dr	10	5/26/2016 3:35:10 PM	25450
Surr: DNOP	0	0	70-130	S	%Rec	10	5/26/2016 3:35:10 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	26	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.027	0.00076	0.044	J	mg/Kg-dr	1	6/7/2016 2:44:15 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	4.1	3.2	6.7	J	mg/Kg-dr	2	6/7/2016 4:46:02 PM	25680
Arsenic	2.5	0.97	3.3	J	mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Barium	450	0.13	0.27		mg/Kg-dr	2	6/7/2016 4:46:02 PM	25680
Beryllium	1.0	0.0062	0.20		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Cadmium	ND	0.085	0.13		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Chromium	14	0.17	0.40		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Cobalt	5.5	0.051	0.40		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Iron	19000	130	330		mg/Kg-dr	100	6/7/2016 3:01:44 PM	25680
Lead	13	0.23	0.33		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Manganese	310	0.059	0.13		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Nickel	10	0.15	0.67		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Selenium	ND	1.5	3.3		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Silver	ND	0.042	0.33		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Vanadium	28	0.046	3.3		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
Zinc	23	0.76	3.3		mg/Kg-dr	1	6/7/2016 4:44:15 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Acenaphthylene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Aniline	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Anthracene	ND	0.089	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Azobenzene	ND	0.16	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benz(a)anthracene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzo(a)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzo(b)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzo(g,h,i)perylene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzo(k)fluoranthene	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzoic acid	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Benzyl alcohol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Bis(2-chloroethoxy)methane	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:20:00 PM

Lab ID: 1605999-018

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.099	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.11	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Bromophenyl phenyl ether	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Butyl benzyl phthalate	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Carbazole	ND	0.091	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Chloro-3-methylphenol	ND	0.16	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Chloroaniline	ND	0.15	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2-Chloronaphthalene	ND	0.11	0.34		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2-Chlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Chlorophenyl phenyl ether	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Chrysene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Di-n-butyl phthalate	ND	0.10	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Di-n-octyl phthalate	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Dibenz(a,h)anthracene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Dibenzofuran	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
1,2-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
1,3-Dichlorobenzene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
3,3'-Dichlorobenzidine	ND	0.099	0.34		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Diethyl phthalate	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Dimethyl phthalate	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4-Dichlorophenol	ND	0.13	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4-Dimethylphenol	ND	0.15	0.40		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.081	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4-Dinitrophenol	ND	0.089	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4-Dinitrotoluene	ND	0.12	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,6-Dinitrotoluene	ND	0.14	0.67		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Fluoranthene	ND	0.077	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Fluorene	0.82	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Hexachlorobenzene	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Hexachlorobutadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Hexachlorocyclopentadiene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Hexachloroethane	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Isophorone	ND	0.15	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
1-Methylnaphthalene	28	1.3	2.7		mg/Kg-dr	10	6/1/2016 10:44:26 AM	25502
2-Methylnaphthalene	42	1.6	2.7		mg/Kg-dr	10	6/1/2016 10:44:26 AM	25502
2-Methylphenol	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502

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	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:20:00 PM

Lab ID: 1605999-018

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
3+4-Methylphenol	ND	0.097	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
N-Nitrosodi-n-propylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
N-Nitrosodiphenylamine	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Naphthalene	21	1.3	2.7		mg/Kg-dr	10	6/1/2016 10:44:26 AM	25502
2-Nitroaniline	ND	0.14	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
3-Nitroaniline	ND	0.12	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Nitroaniline	ND	0.095	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Nitrobenzene	ND	0.14	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2-Nitrophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
4-Nitrophenol	ND	0.10	0.34		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Pentachlorophenol	ND	0.086	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Phenanthrene	1.2	0.091	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Phenol	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Pyrene	ND	0.10	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Pyridine	ND	0.11	0.54		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
1,2,4-Trichlorobenzene	ND	0.15	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4,5-Trichlorophenol	ND	0.13	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
2,4,6-Trichlorophenol	ND	0.11	0.27		mg/Kg-dr	1	5/31/2016 7:10:38 PM	25502
Surr: 2-Fluorophenol	19.4	0	28.3-102	S	%Rec	1	5/31/2016 7:10:38 PM	25502
Surr: Phenol-d5	27.9	0	35.7-103	S	%Rec	1	5/31/2016 7:10:38 PM	25502
Surr: 2,4,6-Tribromophenol	62.5	0	35.2-108		%Rec	1	5/31/2016 7:10:38 PM	25502
Surr: Nitrobenzene-d5	0		24-118	S	%Rec	1	5/31/2016 7:10:38 PM	25502
Surr: 2-Fluorobiphenyl	53.4		35.4-111		%Rec	1	5/31/2016 7:10:38 PM	25502
Surr: 4-Terphenyl-d14	56.6		15-91.7		%Rec	1	5/31/2016 7:10:38 PM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	5.1	1.5	1.8		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Toluene	1.2	0.22	3.6	J	mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Ethylbenzene	21	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Methyl tert-butyl ether (MTBE)	ND	1.1	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2,4-Trimethylbenzene	55	0.27	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,3,5-Trimethylbenzene	15	0.26	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2-Dichloroethane (EDC)	ND	0.95	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2-Dibromoethane (EDB)	ND	0.26	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Naphthalene	21	0.57	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1-Methylnaphthalene	17	0.81	15		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
2-Methylnaphthalene	26	0.78	15		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Acetone	ND	4.7	55		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Bromobenzene	ND	0.29	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Bromodichloromethane	ND	0.21	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-8 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:20:00 PM

Lab ID: 1605999-018

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromoform	ND	0.44	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Bromomethane	ND	1.3	11		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
2-Butanone	ND	2.1	36		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Carbon disulfide	ND	1.2	36		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Carbon tetrachloride	ND	0.24	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Chlorobenzene	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Chloroethane	ND	0.73	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Chloroform	ND	0.27	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Chloromethane	ND	0.32	11		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
2-Chlorotoluene	ND	0.27	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
4-Chlorotoluene	ND	0.32	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
cis-1,2-DCE	ND	0.21	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
cis-1,3-Dichloropropene	ND	0.34	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2-Dibromo-3-chloropropane	ND	1.1	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Dibromochloromethane	ND	0.33	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Dibromomethane	ND	0.31	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2-Dichlorobenzene	ND	0.32	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,3-Dichlorobenzene	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,4-Dichlorobenzene	ND	0.45	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Dichlorodifluoromethane	ND	1.1	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1-Dichloroethane	ND	0.20	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1-Dichloroethene	ND	1.2	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2-Dichloropropane	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,3-Dichloropropane	ND	0.41	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
2,2-Dichloropropane	ND	0.21	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1-Dichloropropene	ND	0.29	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Hexachlorobutadiene	ND	0.44	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
2-Hexanone	ND	2.0	36		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Isopropylbenzene	2.6	0.31	3.6	J	mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
4-Isopropyltoluene	1.1	0.33	3.6	J	mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
4-Methyl-2-pentanone	ND	1.1	36		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Methylene chloride	ND	1.0	11		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
n-Butylbenzene	3.9	0.32	11	J	mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
n-Propylbenzene	9.2	0.28	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
sec-Butylbenzene	1.7	0.50	3.6	J	mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Styrene	ND	0.32	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
tert-Butylbenzene	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1,1,2-Tetrachloroethane	ND	0.35	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1,2,2-Tetrachloroethane	ND	0.59	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605999**

Date Reported: 7/5/2016

CLIENT: Western Refining Company**Client Sample ID:** NDD-8 (1.5-2')**Project:** North Drainage Ditch**Collection Date:** 5/19/2016 4:20:00 PM**Lab ID:** 1605999-018**Matrix:** SOIL**Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Tetrachloroethene (PCE)	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
trans-1,2-DCE	ND	1.0	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
trans-1,3-Dichloropropene	ND	0.53	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2,3-Trichlorobenzene	ND	0.54	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2,4-Trichlorobenzene	ND	0.39	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1,1-Trichloroethane	ND	0.22	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,1,2-Trichloroethane	ND	0.43	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Trichloroethene (TCE)	ND	0.39	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Trichlorofluoromethane	ND	0.27	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
1,2,3-Trichloropropane	ND	0.63	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Vinyl chloride	ND	0.30	3.6		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Xylenes, Total	120	0.69	7.3		mg/Kg-dr	100	5/24/2016 3:26:56 PM	C34454
Surr: Dibromofluoromethane	89.3		70-130		%Rec	100	5/24/2016 3:26:56 PM	C34454
Surr: 1,2-Dichloroethane-d4	82.4		70-130		%Rec	100	5/24/2016 3:26:56 PM	C34454
Surr: Toluene-d8	96.2		70-130		%Rec	100	5/24/2016 3:26:56 PM	C34454
Surr: 4-Bromofluorobenzene	109		70-130		%Rec	100	5/24/2016 3:26:56 PM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	1900	55	360		mg/Kg-dr	100	5/24/2016 3:26:56 PM	B34454
Surr: BFB	100	0	70-130		%Rec	100	5/24/2016 3:26:56 PM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:35:00 PM

Lab ID: 1605999-019

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.4	12		mg/Kg-dr	1	5/25/2016 6:30:37 PM	25450
Motor Oil Range Organics (MRO)	ND	62	62		mg/Kg-dr	1	5/25/2016 6:30:37 PM	25450
Surr: DNOP	107	0	70-130		%Rec	1	5/25/2016 6:30:37 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	20	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.013	0.00069	0.040	J	mg/Kg-dr	1	6/7/2016 2:45:59 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	3.3	2.9	6.2	J	mg/Kg-dr	2	6/7/2016 4:49:40 PM	25680
Arsenic	1.4	0.90	3.1	J	mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Barium	410	0.12	0.25		mg/Kg-dr	2	6/7/2016 4:49:40 PM	25680
Beryllium	0.77	0.0057	0.18		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Chromium	8.0	0.15	0.37		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Cobalt	4.3	0.047	0.37		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Iron	13000	120	310		mg/Kg-dr	100	6/7/2016 3:03:14 PM	25680
Lead	4.2	0.22	0.31		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Manganese	420	0.11	0.25		mg/Kg-dr	2	6/7/2016 4:49:40 PM	25680
Nickel	7.5	0.14	0.62		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Selenium	ND	1.3	3.1		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Silver	ND	0.039	0.31		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Vanadium	18	0.043	3.1		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
Zinc	16	0.70	3.1		mg/Kg-dr	1	6/7/2016 4:47:54 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Anthracene	ND	0.083	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzo(a)pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzoic acid	ND	0.10	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Benzyl alcohol	ND	0.098	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Bis(2-chloroethoxy)methane	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

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Client Sample ID: NDD-9 (0-0.5')

Project: North Drainage Ditch

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.092	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.10	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Carbazole	ND	0.084	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Chloro-3-methylphenol	ND	0.15	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Chloroaniline	ND	0.14	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Chloronaphthalene	ND	0.098	0.31		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Chlorophenol	ND	0.098	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Chrysene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Di-n-butyl phthalate	ND	0.093	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Di-n-octyl phthalate	ND	0.11	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Dibenz(a,h)anthracene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Dibenzofuran	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
1,2-Dichlorobenzene	ND	0.096	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
1,3-Dichlorobenzene	ND	0.096	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
1,4-Dichlorobenzene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
3,3'-Dichlorobenzidine	ND	0.092	0.31		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Diethyl phthalate	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4-Dichlorophenol	ND	0.12	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4-Dimethylphenol	ND	0.14	0.37		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.075	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4-Dinitrophenol	ND	0.083	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.62		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Fluoranthene	ND	0.072	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Hexachlorobenzene	ND	0.098	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.097	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
1-Methylnaphthalene	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Methylphenol	ND	0.10	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
3+4-Methylphenol	ND	0.090	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:35:00 PM

Lab ID: 1605999-019

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Nitroaniline	ND	0.088	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Nitrobenzene	ND	0.13	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
4-Nitrophenol	ND	0.095	0.31		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Pentachlorophenol	ND	0.080	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Phenanthrene	ND	0.085	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Phenol	ND	0.094	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Pyrene	ND	0.094	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Pyridine	ND	0.099	0.50		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 7:40:55 PM	25502
Surr: 2-Fluorophenol	50.8	0	28.3-102		%Rec	1	5/31/2016 7:40:55 PM	25502
Surr: Phenol-d5	57.3	0	35.7-103		%Rec	1	5/31/2016 7:40:55 PM	25502
Surr: 2,4,6-Tribromophenol	65.2	0	35.2-108		%Rec	1	5/31/2016 7:40:55 PM	25502
Surr: Nitrobenzene-d5	62.1		24-118		%Rec	1	5/31/2016 7:40:55 PM	25502
Surr: 2-Fluorobiphenyl	61.0		35.4-111		%Rec	1	5/31/2016 7:40:55 PM	25502
Surr: 4-Terphenyl-d14	53.1		15-91.7		%Rec	1	5/31/2016 7:40:55 PM	25502
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Benzene	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Toluene	0.761	0.194	1.60	J	µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Ethylbenzene	ND	0.215	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Methyl tert-butyl ether (MTBE)	ND	0.269	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2,4-Trimethylbenzene	0.353	0.272	1.60	J	µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,3,5-Trimethylbenzene	ND	0.264	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2-Dichloroethane (EDC)	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2-Dibromoethane (EDB)	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Naphthalene	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1-Methylnaphthalene	0.192	0.182	3.20	J	µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
2-Methylnaphthalene	ND	0.422	3.20		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Acetone	41.0	0.474	8.01		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Bromobenzene	ND	0.163	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Bromodichloromethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Bromoform	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496

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Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:35:00 PM

Lab ID: 1605999-019

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
Bromomethane	ND	0.288	2.40		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
2-Butanone	5.12	0.578	8.01	J	µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Carbon disulfide	ND	0.593	8.01		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Carbon tetrachloride	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Chlorobenzene	ND	0.184	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Chloroethane	ND	0.296	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Chloroform	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Chloromethane	ND	0.406	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
2-Chlorotoluene	ND	0.273	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
4-Chlorotoluene	ND	0.266	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
cis-1,2-DCE	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
cis-1,3-Dichloropropene	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2-Dibromo-3-chloropropane	ND	0.171	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Dibromochloromethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Dibromomethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2-Dichlorobenzene	ND	0.233	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,3-Dichlorobenzene	ND	0.296	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,4-Dichlorobenzene	ND	0.300	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Dichlorodifluoromethane	ND	0.936	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1-Dichloroethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1-Dichloroethene	ND	0.262	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2-Dichloropropane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,3-Dichloropropane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
2,2-Dichloropropane	ND	0.202	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1-Dichloropropene	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Hexachlorobutadiene	ND	0.365	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
2-Hexanone	ND	0.399	8.01		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Isopropylbenzene	ND	0.202	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
4-Isopropyltoluene	ND	0.301	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
4-Methyl-2-pentanone	ND	3.20	8.01		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Methylene chloride	ND	1.60	2.40		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
n-Butylbenzene	ND	0.390	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
n-Propylbenzene	ND	0.287	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
sec-Butylbenzene	ND	0.284	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Styrene	ND	0.205	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
tert-Butylbenzene	ND	0.234	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1,1,2-Tetrachloroethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1,2,2-Tetrachloroethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Tetrachloroethene (PCE)	ND	0.211	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496

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Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
METHOD 8260B/5035LOW: VOLATILES							Analyst: BCN	
trans-1,2-DCE	ND	0.162	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
trans-1,3-Dichloropropene	ND	0.194	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2,3-Trichlorobenzene	ND	0.388	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2,4-Trichlorobenzene	ND	0.486	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1,1-Trichloroethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,1,2-Trichloroethane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Trichloroethene (TCE)	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Trichlorofluoromethane	ND	0.201	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
1,2,3-Trichloropropane	ND	1.60	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Vinyl chloride	ND	0.421	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Xylenes, Total	ND	0.639	1.60		µg/Kg-dry	1	5/26/2016 5:19:00 PM	25496
Surr: 1,2-Dichloroethane-d4	99.4	0	70-130		%Rec	1	5/26/2016 5:19:00 PM	25496
Surr: 4-Bromofluorobenzene	108	0	70-130		%Rec	1	5/26/2016 5:19:00 PM	25496
Surr: Dibromofluoromethane	87.6	0	70-130		%Rec	1	5/26/2016 5:19:00 PM	25496
Surr: Toluene-d8	100	0	70-130		%Rec	1	5/26/2016 5:19:00 PM	25496
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	1.1	0.52	3.5	J	mg/Kg-dr	1	5/25/2016 3:42:20 AM	B34454
Surr: BFB	97.9	0	70-130		%Rec	1	5/25/2016 3:42:20 AM	B34454

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:50:00 PM

Lab ID: 1605999-020

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	3800	44	120		mg/Kg-dr	10	5/26/2016 3:56:53 PM	25450
Motor Oil Range Organics (MRO)	ND	610	610		mg/Kg-dr	10	5/26/2016 3:56:53 PM	25450
Surr: DNOP	0	0	70-130	S	%Rec	10	5/26/2016 3:56:53 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	19	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.0062	0.00068	0.039	J	mg/Kg-dr	1	6/7/2016 2:47:43 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	ND	2.9	6.1		mg/Kg-dr	2	6/7/2016 4:53:20 PM	25680
Arsenic	1.5	0.89	3.1	J	mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Barium	470	0.12	0.24		mg/Kg-dr	2	6/7/2016 4:53:20 PM	25680
Beryllium	0.71	0.0056	0.18		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Chromium	7.8	0.15	0.37		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Cobalt	4.1	0.046	0.37		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Iron	13000	120	310		mg/Kg-dr	100	6/7/2016 3:04:42 PM	25680
Lead	3.9	0.21	0.31		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Manganese	450	0.11	0.24		mg/Kg-dr	2	6/7/2016 4:53:20 PM	25680
Nickel	7.0	0.14	0.61		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Selenium	ND	1.3	3.1		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Silver	ND	0.039	0.31		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Vanadium	17	0.042	3.1		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
Zinc	15	0.70	3.1		mg/Kg-dr	1	6/7/2016 4:51:32 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Acenaphthylene	ND	0.099	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Aniline	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Anthracene	ND	0.081	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Azobenzene	ND	0.15	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benz(a)anthracene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzo(a)pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Benzyl alcohol	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:50:00 PM

Lab ID: 1605999-020

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.090	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.099	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Bromophenyl phenyl ether	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Butyl benzyl phthalate	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Carbazole	ND	0.082	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Chloro-3-methylphenol	ND	0.15	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Chloronaphthalene	ND	0.096	0.31		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Chlorophenol	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Di-n-butyl phthalate	ND	0.091	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Dibenz(a,h)anthracene	ND	0.099	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
1,2-Dichlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
1,3-Dichlorobenzene	ND	0.094	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
3,3'-Dichlorobenzidine	ND	0.090	0.31		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.074	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4-Dinitrophenol	ND	0.081	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Fluoranthene	ND	0.070	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Hexachlorobenzene	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Hexachlorobutadiene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.095	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
3+4-Methylphenol	ND	0.088	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:50:00 PM

Lab ID: 1605999-020

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Naphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
3-Nitroaniline	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
4-Nitrophenol	ND	0.093	0.31		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Pentachlorophenol	ND	0.078	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Phenanthrene	ND	0.083	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Phenol	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Pyridine	ND	0.097	0.49		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
2,4,6-Trichlorophenol	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:11:10 PM	25502
Surr: 2-Fluorophenol	39.3	0	28.3-102		%Rec	1	5/31/2016 8:11:10 PM	25502
Surr: Phenol-d5	47.5	0	35.7-103		%Rec	1	5/31/2016 8:11:10 PM	25502
Surr: 2,4,6-Tribromophenol	57.9	0	35.2-108		%Rec	1	5/31/2016 8:11:10 PM	25502
Surr: Nitrobenzene-d5	49.9		24-118		%Rec	1	5/31/2016 8:11:10 PM	25502
Surr: 2-Fluorobiphenyl	51.9		35.4-111		%Rec	1	5/31/2016 8:11:10 PM	25502
Surr: 4-Terphenyl-d14	43.9		15-91.7		%Rec	1	5/31/2016 8:11:10 PM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	0.98	0.014	0.017		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Toluene	0.18	0.0021	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Ethylbenzene	0.20	0.0029	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.011	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2,4-Trimethylbenzene	1.1	0.0026	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,3,5-Trimethylbenzene	2.3	0.0025	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2-Dichloroethane (EDC)	ND	0.0091	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2-Dibromoethane (EDB)	ND	0.0025	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Naphthalene	0.43	0.0055	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1-Methylnaphthalene	0.80	0.0078	0.14		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
2-Methylnaphthalene	0.89	0.0075	0.14		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Acetone	ND	0.045	0.52		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Bromobenzene	ND	0.0028	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Bromodichloromethane	ND	0.0020	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Bromoform	ND	0.0042	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Company**Client Sample ID:** NDD-9 (1.5-2')**Project:** North Drainage Ditch**Collection Date:** 5/19/2016 4:50:00 PM**Lab ID:** 1605999-020**Matrix:** SOIL**Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromomethane	ND	0.013	0.10		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
2-Butanone	ND	0.020	0.35		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Carbon disulfide	ND	0.012	0.35		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Carbon tetrachloride	ND	0.0023	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Chlorobenzene	ND	0.0028	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Chloroethane	ND	0.0070	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Chloroform	ND	0.0026	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Chloromethane	ND	0.0031	0.10		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
2-Chlorotoluene	ND	0.0026	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
4-Chlorotoluene	ND	0.0031	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
cis-1,2-DCE	ND	0.0020	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
cis-1,3-Dichloropropene	ND	0.0032	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2-Dibromo-3-chloropropane	ND	0.011	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Dibromochloromethane	ND	0.0032	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Dibromomethane	ND	0.0030	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2-Dichlorobenzene	ND	0.0030	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,3-Dichlorobenzene	ND	0.0029	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,4-Dichlorobenzene	ND	0.0043	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Dichlorodifluoromethane	ND	0.011	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1-Dichloroethane	ND	0.0019	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1-Dichloroethene	ND	0.011	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2-Dichloropropane	ND	0.0029	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,3-Dichloropropane	ND	0.0040	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
2,2-Dichloropropane	ND	0.0020	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1-Dichloropropene	ND	0.0028	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Hexachlorobutadiene	ND	0.0043	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
2-Hexanone	ND	0.019	0.35		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Isopropylbenzene	ND	0.0030	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
4-Isopropyltoluene	0.14	0.0031	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
4-Methyl-2-pentanone	ND	0.010	0.35		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Methylene chloride	0.010	0.010	0.10	J	mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
n-Butylbenzene	0.067	0.0031	0.10	J	mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
n-Propylbenzene	ND	0.0027	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
sec-Butylbenzene	0.010	0.0048	0.035	J	mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Styrene	ND	0.0031	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
tert-Butylbenzene	0.0030	0.0029	0.035	J	mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0033	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0057	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Tetrachloroethene (PCE)	ND	0.0029	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-9 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 4:50:00 PM

Lab ID: 1605999-020

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
trans-1,2-DCE	ND	0.0098	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
trans-1,3-Dichloropropene	ND	0.0051	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2,3-Trichlorobenzene	ND	0.0052	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2,4-Trichlorobenzene	ND	0.0037	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1,1-Trichloroethane	ND	0.0021	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,1,2-Trichloroethane	ND	0.0041	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Trichloroethene (TCE)	ND	0.0037	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Trichlorofluoromethane	ND	0.0026	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
1,2,3-Trichloropropane	ND	0.0060	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Vinyl chloride	ND	0.0029	0.035		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Xylenes, Total	3.6	0.0066	0.070		mg/Kg-dr	1	5/25/2016 4:10:25 AM	C34454
Surr: Dibromofluoromethane	80.6		70-130		%Rec	1	5/25/2016 4:10:25 AM	C34454
Surr: 1,2-Dichloroethane-d4	75.2		70-130		%Rec	1	5/25/2016 4:10:25 AM	C34454
Surr: Toluene-d8	101		70-130		%Rec	1	5/25/2016 4:10:25 AM	C34454
Surr: 4-Bromofluorobenzene	312		70-130	S	%Rec	1	5/25/2016 4:10:25 AM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	350	11	70		mg/Kg-dr	20	5/25/2016 1:09:36 PM	A34485
Surr: BFB	102	0	70-130		%Rec	20	5/25/2016 1:09:36 PM	A34485

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:00:00 PM

Lab ID: 1605999-021

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	330	4.2	12		mg/Kg-dr	1	5/26/2016 2:51:47 PM	25450
Motor Oil Range Organics (MRO)	360	59	59		mg/Kg-dr	1	5/26/2016 2:51:47 PM	25450
Surr: DNOP	132	0	70-130	S	%Rec	1	5/26/2016 2:51:47 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	17	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.14	0.00068	0.040		mg/Kg-dr	1	6/7/2016 2:49:27 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	12	1.4	3.0		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Arsenic	21	0.88	3.0		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Barium	440	0.12	0.24		mg/Kg-dr	2	6/7/2016 4:56:57 PM	25680
Beryllium	0.96	0.0056	0.18		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Chromium	20	0.15	0.36		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Cobalt	9.2	0.046	0.36		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Iron	15000	120	300		mg/Kg-dr	100	6/7/2016 3:06:13 PM	25680
Lead	32	0.21	0.30		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Manganese	400	0.11	0.24		mg/Kg-dr	2	6/7/2016 4:56:57 PM	25680
Nickel	130	0.14	0.60		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Silver	ND	0.038	0.30		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Vanadium	210	0.042	3.0		mg/Kg-dr	1	6/7/2016 4:55:13 PM	25680
Zinc	400	1.4	6.0		mg/Kg-dr	2	6/7/2016 4:56:57 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Acenaphthylene	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Aniline	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Anthracene	ND	0.078	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Azobenzene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benz(a)anthracene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzo(a)pyrene	ND	0.090	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzo(g,h,i)perylene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzo(k)fluoranthene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzoic acid	ND	0.098	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Benzyl alcohol	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:00:00 PM

Lab ID: 1605999-021

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.087	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.096	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Bromophenyl phenyl ether	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Butyl benzyl phthalate	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Carbazole	ND	0.080	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Chloro-3-methylphenol	ND	0.14	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Chloroaniline	ND	0.13	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Chloronaphthalene	ND	0.093	0.30		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Chlorophenol	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Chrysene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Di-n-butyl phthalate	ND	0.088	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Di-n-octyl phthalate	ND	0.10	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Dibenz(a,h)anthracene	ND	0.096	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Dibenzofuran	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
1,2-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
1,3-Dichlorobenzene	ND	0.091	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
1,4-Dichlorobenzene	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
3,3'-Dichlorobenzidine	ND	0.087	0.30		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Diethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Dimethyl phthalate	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4-Dichlorophenol	ND	0.11	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4-Dimethylphenol	ND	0.13	0.35		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.072	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4-Dinitrophenol	ND	0.078	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.59		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Fluoranthene	ND	0.068	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Fluorene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Hexachlorobenzene	ND	0.093	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Hexachlorobutadiene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Hexachloroethane	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.092	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
1-Methylnaphthalene	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Methylnaphthalene	ND	0.14	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Methylphenol	ND	0.099	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
3+4-Methylphenol	ND	0.086	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:00:00 PM

Lab ID: 1605999-021

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Naphthalene	ND	0.11	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Nitroaniline	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
3-Nitroaniline	ND	0.10	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Nitroaniline	ND	0.083	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Nitrobenzene	ND	0.12	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2-Nitrophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
4-Nitrophenol	ND	0.090	0.30		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Pentachlorophenol	ND	0.076	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Phenanthrene	ND	0.080	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Phenol	ND	0.089	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Pyrene	ND	0.089	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Pyridine	ND	0.094	0.47		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
2,4,6-Trichlorophenol	ND	0.098	0.24		mg/Kg-dr	1	5/31/2016 8:41:25 PM	25502
Surr: 2-Fluorophenol	53.7	0	28.3-102		%Rec	1	5/31/2016 8:41:25 PM	25502
Surr: Phenol-d5	63.3	0	35.7-103		%Rec	1	5/31/2016 8:41:25 PM	25502
Surr: 2,4,6-Tribromophenol	64.6	0	35.2-108		%Rec	1	5/31/2016 8:41:25 PM	25502
Surr: Nitrobenzene-d5	64.7		24-118		%Rec	1	5/31/2016 8:41:25 PM	25502
Surr: 2-Fluorobiphenyl	70.8		35.4-111		%Rec	1	5/31/2016 8:41:25 PM	25502
Surr: 4-Terphenyl-d14	51.0		15-91.7		%Rec	1	5/31/2016 8:41:25 PM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.022	0.028		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Toluene	ND	0.0033	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Ethylbenzene	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.018	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2,4-Trimethylbenzene	ND	0.0041	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,3,5-Trimethylbenzene	ND	0.0041	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2-Dichloroethane (EDC)	ND	0.015	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2-Dibromoethane (EDB)	ND	0.0040	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Naphthalene	ND	0.0087	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1-Methylnaphthalene	ND	0.012	0.22		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
2-Methylnaphthalene	ND	0.012	0.22		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Acetone	ND	0.072	0.84		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Bromobenzene	ND	0.0045	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Bromodichloromethane	ND	0.0033	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Bromoform	ND	0.0068	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (0-0.5')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:00:00 PM

Lab ID: 1605999-021

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromomethane	ND	0.021	0.17		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
2-Butanone	ND	0.032	0.56		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Carbon disulfide	ND	0.018	0.56		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Carbon tetrachloride	ND	0.0037	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Chlorobenzene	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Chloroethane	ND	0.011	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Chloroform	ND	0.0042	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Chloromethane	ND	0.0050	0.17		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
2-Chlorotoluene	ND	0.0041	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
4-Chlorotoluene	ND	0.0049	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
cis-1,2-DCE	ND	0.0033	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
cis-1,3-Dichloropropene	ND	0.0052	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2-Dibromo-3-chloropropane	ND	0.017	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Dibromochloromethane	ND	0.0051	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Dibromomethane	ND	0.0048	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2-Dichlorobenzene	ND	0.0049	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,3-Dichlorobenzene	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,4-Dichlorobenzene	ND	0.0069	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Dichlorodifluoromethane	ND	0.017	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1-Dichloroethane	ND	0.0030	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1-Dichloroethene	ND	0.018	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2-Dichloropropane	ND	0.0047	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,3-Dichloropropane	ND	0.0063	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
2,2-Dichloropropane	ND	0.0032	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1-Dichloropropene	ND	0.0044	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Hexachlorobutadiene	ND	0.0068	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
2-Hexanone	ND	0.030	0.56		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Isopropylbenzene	ND	0.0048	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
4-Isopropyltoluene	ND	0.0050	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
4-Methyl-2-pentanone	ND	0.016	0.56		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Methylene chloride	ND	0.016	0.17		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
n-Butylbenzene	ND	0.0049	0.17		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
n-Propylbenzene	ND	0.0043	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
sec-Butylbenzene	ND	0.0077	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Styrene	ND	0.0050	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
tert-Butylbenzene	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0054	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0091	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Tetrachloroethene (PCE)	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1605999**

Date Reported: 7/5/2016

CLIENT: Western Refining Company**Client Sample ID:** NDD-5 (0-0.5')**Project:** North Drainage Ditch**Collection Date:** 5/19/2016 5:00:00 PM**Lab ID:** 1605999-021**Matrix:** SOIL**Received Date:** 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
trans-1,2-DCE	ND	0.016	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
trans-1,3-Dichloropropene	ND	0.0082	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2,3-Trichlorobenzene	ND	0.0084	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2,4-Trichlorobenzene	ND	0.0060	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1,1-Trichloroethane	ND	0.0034	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,1,2-Trichloroethane	ND	0.0066	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Trichloroethene (TCE)	ND	0.0060	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Trichlorofluoromethane	ND	0.0042	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
1,2,3-Trichloropropane	ND	0.0097	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Vinyl chloride	ND	0.0046	0.056		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Xylenes, Total	ND	0.011	0.11		mg/Kg-dr	1	5/27/2016 12:23:07 PM	C34454
Surr: Dibromofluoromethane	94.2		70-130		%Rec	1	5/27/2016 12:23:07 PM	C34454
Surr: 1,2-Dichloroethane-d4	94.4		70-130		%Rec	1	5/27/2016 12:23:07 PM	C34454
Surr: Toluene-d8	105		70-130		%Rec	1	5/27/2016 12:23:07 PM	C34454
Surr: 4-Bromofluorobenzene	105		70-130		%Rec	1	5/27/2016 12:23:07 PM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	3.3	0.84	5.6	J	mg/Kg-dr	1	5/25/2016 12:41:20 PM	A34485
Surr: BFB	97.4	0	70-130		%Rec	1	5/25/2016 12:41:20 PM	A34485

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:15:00 PM

Lab ID: 1605999-022

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	27000	420	1200		mg/Kg-dr	100	5/25/2016 7:57:58 PM	25450
Motor Oil Range Organics (MRO)	19000	5800	5800		mg/Kg-dr	100	5/25/2016 7:57:58 PM	25450
Surr: DNOP	0	0	70-130	S	%Rec	100	5/25/2016 7:57:58 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	20	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.028	0.00070	0.041	J	mg/Kg-dr	1	6/7/2016 2:51:12 PM	25682
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	5.8	2.9	6.1	J	mg/Kg-dr	2	6/7/2016 5:08:15 PM	25680
Arsenic	4.6	0.89	3.0		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Barium	230	0.059	0.12		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Beryllium	0.88	0.0056	0.18		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Chromium	13	0.15	0.37		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Cobalt	5.3	0.046	0.37		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Iron	14000	120	300		mg/Kg-dr	100	6/7/2016 3:07:43 PM	25680
Lead	7.3	0.21	0.30		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Manganese	270	0.054	0.12		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Nickel	26	0.14	0.61		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Silver	ND	0.039	0.30		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Vanadium	40	0.042	3.0		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
Zinc	56	0.69	3.0		mg/Kg-dr	1	6/7/2016 4:58:53 PM	25680
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Acenaphthylene	ND	10	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Aniline	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Anthracene	ND	8.2	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Azobenzene	ND	15	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benz(a)anthracene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzo(a)pyrene	ND	9.4	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzo(b)fluoranthene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzo(g,h,i)perylene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzo(k)fluoranthene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzoic acid	ND	10	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Benzyl alcohol	ND	9.7	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Bis(2-chloroethoxy)methane	ND	13	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:15:00 PM

Lab ID: 1605999-022

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	9.1	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Bis(2-chloroisopropyl)ether	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Bis(2-ethylhexyl)phthalate	ND	10	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Bromophenyl phenyl ether	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Butyl benzyl phthalate	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Carbazole	ND	8.4	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Chloro-3-methylphenol	ND	15	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Chloroaniline	ND	13	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Chloronaphthalene	ND	9.8	31	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Chlorophenol	ND	9.8	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Chlorophenyl phenyl ether	ND	14	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Chrysene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Di-n-butyl phthalate	ND	9.3	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Di-n-octyl phthalate	ND	11	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Dibenz(a,h)anthracene	ND	10	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Dibenzofuran	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
1,2-Dichlorobenzene	ND	9.5	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
1,3-Dichlorobenzene	ND	9.6	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
1,4-Dichlorobenzene	ND	10	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
3,3'-Dichlorobenzidine	ND	9.1	31	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Diethyl phthalate	ND	13	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Dimethyl phthalate	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4-Dichlorophenol	ND	12	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4-Dimethylphenol	ND	13	37	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4,6-Dinitro-2-methylphenol	ND	7.5	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4-Dinitrophenol	ND	8.2	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4-Dinitrotoluene	ND	11	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,6-Dinitrotoluene	ND	13	62	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Fluoranthene	ND	7.1	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Fluorene	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Hexachlorobenzene	ND	9.8	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Hexachlorobutadiene	ND	14	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Hexachlorocyclopentadiene	ND	14	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Hexachloroethane	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Indeno(1,2,3-cd)pyrene	ND	9.7	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Isophorone	ND	14	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
1-Methylnaphthalene	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Methylnaphthalene	ND	15	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Methylphenol	ND	10	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:15:00 PM

Lab ID: 1605999-022

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
3+4-Methylphenol	ND	9.0	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
N-Nitrosodi-n-propylamine	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
N-Nitrosodiphenylamine	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Naphthalene	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Nitroaniline	ND	13	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
3-Nitroaniline	ND	11	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Nitroaniline	ND	8.7	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Nitrobenzene	ND	13	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2-Nitrophenol	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
4-Nitrophenol	ND	9.4	31	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Pentachlorophenol	ND	8.0	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Phenanthrene	ND	8.4	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Phenol	ND	9.3	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Pyrene	ND	9.4	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Pyridine	ND	9.8	50	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
1,2,4-Trichlorobenzene	ND	13	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4,5-Trichlorophenol	ND	12	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
2,4,6-Trichlorophenol	ND	10	25	D	mg/Kg-dr	10	5/31/2016 9:11:40 PM	25502
Surr: 2-Fluorophenol	0	0	28.3-102	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
Surr: Phenol-d5	0	0	35.7-103	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
Surr: 2,4,6-Tribromophenol	0	0	35.2-108	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
Surr: Nitrobenzene-d5	0		24-118	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
Surr: 2-Fluorobiphenyl	0		35.4-111	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
Surr: 4-Terphenyl-d14	0		15-91.7	SD	%Rec	10	5/31/2016 9:11:40 PM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.020	0.025		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Toluene	ND	0.0030	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Ethylbenzene	ND	0.0042	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.016	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2,4-Trimethylbenzene	ND	0.0037	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,3,5-Trimethylbenzene	ND	0.0037	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2-Dichloroethane (EDC)	ND	0.013	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2-Dibromoethane (EDB)	ND	0.0036	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Naphthalene	ND	0.0079	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1-Methylnaphthalene	0.071	0.011	0.20	J	mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
2-Methylnaphthalene	0.058	0.011	0.20	J	mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Acetone	ND	0.066	0.76		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Bromobenzene	ND	0.0041	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Bromodichloromethane	ND	0.0030	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:15:00 PM

Lab ID: 1605999-022

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromoform	ND	0.0062	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Bromomethane	ND	0.019	0.15		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
2-Butanone	ND	0.029	0.51		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Carbon disulfide	ND	0.017	0.51		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Carbon tetrachloride	ND	0.0033	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Chlorobenzene	ND	0.0041	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Chloroethane	ND	0.010	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Chloroform	ND	0.0038	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Chloromethane	ND	0.0045	0.15		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
2-Chlorotoluene	ND	0.0037	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
4-Chlorotoluene	ND	0.0045	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
cis-1,2-DCE	ND	0.0030	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
cis-1,3-Dichloropropene	ND	0.0047	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2-Dibromo-3-chloropropane	ND	0.016	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Dibromochloromethane	ND	0.0046	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Dibromomethane	ND	0.0044	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2-Dichlorobenzene	ND	0.0044	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,3-Dichlorobenzene	ND	0.0042	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,4-Dichlorobenzene	ND	0.0063	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Dichlorodifluoromethane	ND	0.016	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1-Dichloroethane	ND	0.0027	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1-Dichloroethene	ND	0.017	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2-Dichloropropane	ND	0.0043	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,3-Dichloropropane	ND	0.0058	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
2,2-Dichloropropane	ND	0.0029	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1-Dichloropropene	ND	0.0040	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Hexachlorobutadiene	ND	0.0062	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
2-Hexanone	ND	0.028	0.51		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Isopropylbenzene	ND	0.0044	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
4-Isopropyltoluene	ND	0.0046	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
4-Methyl-2-pentanone	ND	0.015	0.51		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Methylene chloride	0.016	0.015	0.15	J	mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
n-Butylbenzene	ND	0.0045	0.15		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
n-Propylbenzene	ND	0.0039	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
sec-Butylbenzene	ND	0.0070	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Styrene	ND	0.0045	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
tert-Butylbenzene	ND	0.0042	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0049	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0082	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: NDD-5 (1.5-2')

Project: North Drainage Ditch

Collection Date: 5/19/2016 5:15:00 PM

Lab ID: 1605999-022

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Tetrachloroethene (PCE)	ND	0.0042	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
trans-1,2-DCE	ND	0.014	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
trans-1,3-Dichloropropene	ND	0.0074	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2,3-Trichlorobenzene	ND	0.0076	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2,4-Trichlorobenzene	ND	0.0054	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1,1-Trichloroethane	ND	0.0031	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,1,2-Trichloroethane	ND	0.0060	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Trichloroethene (TCE)	ND	0.0054	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Trichlorofluoromethane	ND	0.0038	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
1,2,3-Trichloropropane	ND	0.0088	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Vinyl chloride	ND	0.0042	0.051		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Xylenes, Total	ND	0.0096	0.10		mg/Kg-dr	1	5/25/2016 5:06:46 AM	C34454
Surr: Dibromofluoromethane	86.7		70-130		%Rec	1	5/25/2016 5:06:46 AM	C34454
Surr: 1,2-Dichloroethane-d4	77.1		70-130		%Rec	1	5/25/2016 5:06:46 AM	C34454
Surr: Toluene-d8	102		70-130		%Rec	1	5/25/2016 5:06:46 AM	C34454
Surr: 4-Bromofluorobenzene	147		70-130	S	%Rec	1	5/25/2016 5:06:46 AM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	110	0.76	5.1		mg/Kg-dr	1	5/25/2016 5:06:46 AM	B34454
Surr: BFB	120	0	70-130		%Rec	1	5/25/2016 5:06:46 AM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-023

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	ND	4.5	13		mg/Kg-dr	1	5/25/2016 8:41:38 PM	25450
Motor Oil Range Organics (MRO)	ND	63	63		mg/Kg-dr	1	5/25/2016 8:41:38 PM	25450
Surr: DNOP	112	0	70-130		%Rec	1	5/25/2016 8:41:38 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	18	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.014	0.00069	0.040	J	mg/Kg-dr	1	6/7/2016 1:42:49 PM	25683
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	2.2	1.4	3.0	J	mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Arsenic	1.2	0.89	3.0	J	mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Barium	340	0.12	0.24		mg/Kg-dr	2	6/7/2016 5:35:36 PM	25681
Beryllium	0.70	0.0056	0.18		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Cadmium	ND	0.077	0.12		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Chromium	8.0	0.15	0.36		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Cobalt	4.1	0.046	0.36		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Iron	11000	120	300		mg/Kg-dr	100	6/7/2016 3:09:14 PM	25681
Lead	5.6	0.21	0.30		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Manganese	440	0.11	0.24		mg/Kg-dr	2	6/7/2016 5:35:36 PM	25681
Nickel	7.5	0.14	0.61		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Selenium	ND	1.3	3.0		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Silver	ND	0.039	0.30		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Vanadium	15	0.042	3.0		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
Zinc	16	0.69	3.0		mg/Kg-dr	1	6/9/2016 10:07:23 AM	25681
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Acenaphthylene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Aniline	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Anthracene	ND	0.081	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Azobenzene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benz(a)anthracene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzo(a)pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzo(b)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzo(g,h,i)perylene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzo(k)fluoranthene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzoic acid	ND	0.10	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Benzyl alcohol	ND	0.096	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Bis(2-chloroethoxy)methane	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP01

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-023

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	0.090	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Bis(2-chloroisopropyl)ether	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Bis(2-ethylhexyl)phthalate	ND	0.10	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Bromophenyl phenyl ether	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Butyl benzyl phthalate	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Carbazole	ND	0.083	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Chloro-3-methylphenol	ND	0.15	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Chloroaniline	ND	0.13	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Chloronaphthalene	ND	0.096	0.31		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Chlorophenol	ND	0.097	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Chlorophenyl phenyl ether	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Chrysene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Di-n-butyl phthalate	ND	0.092	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Di-n-octyl phthalate	ND	0.10	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Dibenz(a,h)anthracene	ND	0.099	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Dibenzofuran	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
1,2-Dichlorobenzene	ND	0.094	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
1,3-Dichlorobenzene	ND	0.095	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
1,4-Dichlorobenzene	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
3,3'-Dichlorobenzidine	ND	0.090	0.31		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Diethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Dimethyl phthalate	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4-Dichlorophenol	ND	0.11	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4-Dimethylphenol	ND	0.13	0.37		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4,6-Dinitro-2-methylphenol	ND	0.074	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4-Dinitrophenol	ND	0.081	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4-Dinitrotoluene	ND	0.11	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,6-Dinitrotoluene	ND	0.13	0.61		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Fluoranthene	ND	0.071	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Fluorene	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Hexachlorobenzene	ND	0.097	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Hexachlorobutadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Hexachlorocyclopentadiene	ND	0.14	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Hexachloroethane	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Indeno(1,2,3-cd)pyrene	ND	0.096	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
1-Methylnaphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Methylnaphthalene	ND	0.15	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Methylphenol	ND	0.10	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
3+4-Methylphenol	ND	0.089	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-023

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
N-Nitrosodi-n-propylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
N-Nitrosodiphenylamine	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Naphthalene	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Nitroaniline	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
3-Nitroaniline	ND	0.11	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Nitroaniline	ND	0.086	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Nitrobenzene	ND	0.13	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2-Nitrophenol	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
4-Nitrophenol	ND	0.093	0.31		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Pentachlorophenol	ND	0.079	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Phenanthrene	ND	0.083	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Phenol	ND	0.092	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Pyrene	ND	0.093	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Pyridine	ND	0.097	0.49		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
1,2,4-Trichlorobenzene	ND	0.13	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4,5-Trichlorophenol	ND	0.12	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
2,4,6-Trichlorophenol	ND	0.10	0.25		mg/Kg-dr	1	5/31/2016 9:41:51 PM	25502
Surr: 2-Fluorophenol	46.8	0	28.3-102		%Rec	1	5/31/2016 9:41:51 PM	25502
Surr: Phenol-d5	52.4	0	35.7-103		%Rec	1	5/31/2016 9:41:51 PM	25502
Surr: 2,4,6-Tribromophenol	72.4	0	35.2-108		%Rec	1	5/31/2016 9:41:51 PM	25502
Surr: Nitrobenzene-d5	52.4		24-118		%Rec	1	5/31/2016 9:41:51 PM	25502
Surr: 2-Fluorobiphenyl	63.4		35.4-111		%Rec	1	5/31/2016 9:41:51 PM	25502
Surr: 4-Terphenyl-d14	50.8		15-91.7		%Rec	1	5/31/2016 9:41:51 PM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.019	0.023		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Toluene	ND	0.0027	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Ethylbenzene	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.015	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2,4-Trimethylbenzene	ND	0.0034	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,3,5-Trimethylbenzene	ND	0.0034	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2-Dichloroethane (EDC)	ND	0.012	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2-Dibromoethane (EDB)	ND	0.0033	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Naphthalene	ND	0.0072	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1-Methylnaphthalene	ND	0.010	0.19		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
2-Methylnaphthalene	ND	0.0099	0.19		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Acetone	ND	0.060	0.69		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Bromobenzene	ND	0.0037	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Bromodichloromethane	ND	0.0027	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Bromoform	ND	0.0056	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-023

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromomethane	ND	0.017	0.14		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
2-Butanone	ND	0.026	0.46		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Carbon disulfide	ND	0.015	0.46		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Carbon tetrachloride	ND	0.0030	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Chlorobenzene	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Chloroethane	ND	0.0092	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Chloroform	ND	0.0035	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Chloromethane	ND	0.0041	0.14		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
2-Chlorotoluene	ND	0.0034	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
4-Chlorotoluene	ND	0.0041	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
cis-1,2-DCE	ND	0.0027	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
cis-1,3-Dichloropropene	ND	0.0043	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2-Dibromo-3-chloropropane	ND	0.014	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Dibromochloromethane	ND	0.0042	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Dibromomethane	ND	0.0040	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2-Dichlorobenzene	ND	0.0040	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,3-Dichlorobenzene	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,4-Dichlorobenzene	ND	0.0057	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Dichlorodifluoromethane	ND	0.014	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1-Dichloroethane	ND	0.0025	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1-Dichloroethene	ND	0.015	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2-Dichloropropane	ND	0.0039	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,3-Dichloropropane	ND	0.0052	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
2,2-Dichloropropane	ND	0.0026	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1-Dichloropropene	ND	0.0037	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Hexachlorobutadiene	ND	0.0057	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
2-Hexanone	ND	0.025	0.46		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Isopropylbenzene	ND	0.0040	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
4-Isopropyltoluene	ND	0.0042	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
4-Methyl-2-pentanone	ND	0.013	0.46		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Methylene chloride	0.014	0.013	0.14	J	mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
n-Butylbenzene	ND	0.0041	0.14		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
n-Propylbenzene	ND	0.0036	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
sec-Butylbenzene	ND	0.0064	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Styrene	ND	0.0041	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
tert-Butylbenzene	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0044	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0075	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Tetrachloroethene (PCE)	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-023

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
trans-1,2-DCE	ND	0.013	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
trans-1,3-Dichloropropene	ND	0.0068	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2,3-Trichlorobenzene	ND	0.0069	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2,4-Trichlorobenzene	ND	0.0049	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1,1-Trichloroethane	ND	0.0028	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,1,2-Trichloroethane	ND	0.0055	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Trichloroethene (TCE)	ND	0.0050	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Trichlorofluoromethane	ND	0.0035	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
1,2,3-Trichloropropane	ND	0.0080	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Vinyl chloride	ND	0.0038	0.046		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Xylenes, Total	ND	0.0088	0.093		mg/Kg-dr	1	5/25/2016 5:35:07 AM	C34454
Surr: Dibromofluoromethane	88.2		70-130		%Rec	1	5/25/2016 5:35:07 AM	C34454
Surr: 1,2-Dichloroethane-d4	77.1		70-130		%Rec	1	5/25/2016 5:35:07 AM	C34454
Surr: Toluene-d8	99.3		70-130		%Rec	1	5/25/2016 5:35:07 AM	C34454
Surr: 4-Bromofluorobenzene	104		70-130		%Rec	1	5/25/2016 5:35:07 AM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	3.9	0.70	4.6	J	mg/Kg-dr	1	5/25/2016 5:35:07 AM	B34454
Surr: BFB	98.3	0	70-130		%Rec	1	5/25/2016 5:35:07 AM	B34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP02

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-024

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: KJH	
Diesel Range Organics (DRO)	27000	420	1200		mg/Kg-dr	100	5/25/2016 9:03:22 PM	25450
Motor Oil Range Organics (MRO)	20000	5900	5900		mg/Kg-dr	100	5/25/2016 9:03:22 PM	25450
Surr: DNOP	0	0	70-130	S	%Rec	100	5/25/2016 9:03:22 PM	25450
PERCENT MOISTURE							Analyst: BCN	
Percent Moisture	20	1.0	1.0		wt%	1	5/24/2016	R34515
EPA METHOD 7471: MERCURY							Analyst: pmf	
Mercury	0.039	0.00072	0.042	J	mg/Kg-dr	1	6/7/2016 1:48:08 PM	25683
EPA METHOD 6010B: SOIL METALS							Analyst: MED	
Antimony	4.1	1.5	3.1		mg/Kg-dr	1	6/9/2016 10:13:51 AM	25681
Arsenic	3.9	0.90	3.1		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Barium	250	0.060	0.12		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Beryllium	1.0	0.0057	0.18		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Cadmium	ND	0.078	0.12		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Chromium	14	0.15	0.37		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Cobalt	5.9	0.047	0.37		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Iron	17000	120	310		mg/Kg-dr	100	6/7/2016 3:10:46 PM	25681
Lead	7.4	0.22	0.31		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Manganese	380	0.11	0.25		mg/Kg-dr	2	6/7/2016 5:42:41 PM	25681
Nickel	25	0.14	0.62		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Selenium	ND	1.3	3.1		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Silver	ND	0.039	0.31		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Vanadium	39	0.043	3.1		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
Zinc	53	0.70	3.1		mg/Kg-dr	1	6/7/2016 5:40:55 PM	25681
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	21	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Acenaphthylene	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Aniline	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Anthracene	ND	17	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Azobenzene	ND	30	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benz(a)anthracene	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzo(a)pyrene	ND	19	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzo(b)fluoranthene	ND	23	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzo(g,h,i)perylene	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzo(k)fluoranthene	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzoic acid	ND	21	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Benzyl alcohol	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Bis(2-chloroethoxy)methane	ND	27	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP02

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-024

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Bis(2-chloroethyl)ether	ND	18	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Bis(2-chloroisopropyl)ether	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Bis(2-ethylhexyl)phthalate	ND	20	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Bromophenyl phenyl ether	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Butyl benzyl phthalate	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Carbazole	ND	17	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Chloro-3-methylphenol	ND	30	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Chloroaniline	ND	27	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Chloronaphthalene	ND	20	63	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Chlorophenol	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Chlorophenyl phenyl ether	ND	29	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Chrysene	ND	21	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Di-n-butyl phthalate	ND	19	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Di-n-octyl phthalate	ND	21	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Dibenz(a,h)anthracene	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Dibenzofuran	ND	25	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
1,2-Dichlorobenzene	ND	19	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
1,3-Dichlorobenzene	ND	19	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
1,4-Dichlorobenzene	ND	21	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
3,3'-Dichlorobenzidine	ND	18	63	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Diethyl phthalate	ND	25	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Dimethyl phthalate	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4-Dichlorophenol	ND	23	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4-Dimethylphenol	ND	27	75	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4,6-Dinitro-2-methylphenol	ND	15	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4-Dinitrophenol	ND	17	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4-Dinitrotoluene	ND	22	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,6-Dinitrotoluene	ND	26	130	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Fluoranthene	ND	14	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Fluorene	ND	23	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Hexachlorobenzene	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Hexachlorobutadiene	ND	28	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Hexachlorocyclopentadiene	ND	29	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Hexachloroethane	ND	21	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Indeno(1,2,3-cd)pyrene	ND	20	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Isophorone	ND	28	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
1-Methylnaphthalene	ND	25	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Methylnaphthalene	ND	30	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Methylphenol	ND	21	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP02

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-024

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
3+4-Methylphenol	ND	18	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
N-Nitrosodi-n-propylamine	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
N-Nitrosodiphenylamine	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Naphthalene	ND	24	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Nitroaniline	ND	27	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
3-Nitroaniline	ND	22	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Nitroaniline	ND	18	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Nitrobenzene	ND	26	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2-Nitrophenol	ND	25	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
4-Nitrophenol	ND	19	63	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Pentachlorophenol	ND	16	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Phenanthrene	ND	17	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Phenol	ND	19	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Pyrene	ND	19	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Pyridine	ND	20	100	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
1,2,4-Trichlorobenzene	ND	27	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4,5-Trichlorophenol	ND	25	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
2,4,6-Trichlorophenol	ND	21	50	D	mg/Kg-dr	20	6/1/2016 11:14:35 AM	25502
Surr: 2-Fluorophenol	0	0	28.3-102	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
Surr: Phenol-d5	0	0	35.7-103	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
Surr: 2,4,6-Tribromophenol	0	0	35.2-108	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
Surr: Nitrobenzene-d5	0		24-118	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
Surr: 2-Fluorobiphenyl	0		35.4-111	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
Surr: 4-Terphenyl-d14	0		15-91.7	SD	%Rec	20	6/1/2016 11:14:35 AM	25502
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.021	0.026		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Toluene	ND	0.0031	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Ethylbenzene	ND	0.0043	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Methyl tert-butyl ether (MTBE)	ND	0.016	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2,4-Trimethylbenzene	ND	0.0039	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,3,5-Trimethylbenzene	ND	0.0038	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2-Dichloroethane (EDC)	ND	0.014	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2-Dibromoethane (EDB)	ND	0.0037	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Naphthalene	ND	0.0082	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1-Methylnaphthalene	ND	0.012	0.21		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
2-Methylnaphthalene	ND	0.011	0.21		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Acetone	ND	0.068	0.79		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Bromobenzene	ND	0.0042	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Bromodichloromethane	ND	0.0031	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP02

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-024

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Bromoform	ND	0.0064	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Bromomethane	ND	0.019	0.16		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
2-Butanone	ND	0.030	0.53		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Carbon disulfide	ND	0.017	0.53		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Carbon tetrachloride	ND	0.0034	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Chlorobenzene	ND	0.0043	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Chloroethane	ND	0.010	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Chloroform	ND	0.0040	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Chloromethane	ND	0.0047	0.16		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
2-Chlorotoluene	ND	0.0039	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
4-Chlorotoluene	ND	0.0046	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
cis-1,2-DCE	ND	0.0031	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
cis-1,3-Dichloropropene	ND	0.0048	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2-Dibromo-3-chloropropane	ND	0.016	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Dibromochloromethane	ND	0.0047	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Dibromomethane	ND	0.0045	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2-Dichlorobenzene	ND	0.0046	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,3-Dichlorobenzene	ND	0.0043	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,4-Dichlorobenzene	ND	0.0065	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Dichlorodifluoromethane	ND	0.016	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1-Dichloroethane	ND	0.0028	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1-Dichloroethene	ND	0.017	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2-Dichloropropane	ND	0.0044	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,3-Dichloropropane	ND	0.0060	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
2,2-Dichloropropane	ND	0.0030	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1-Dichloropropene	ND	0.0042	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Hexachlorobutadiene	ND	0.0064	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
2-Hexanone	ND	0.029	0.53		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Isopropylbenzene	ND	0.0045	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
4-Isopropyltoluene	ND	0.0047	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
4-Methyl-2-pentanone	ND	0.015	0.53		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Methylene chloride	ND	0.015	0.16		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
n-Butylbenzene	ND	0.0046	0.16		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
n-Propylbenzene	ND	0.0040	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
sec-Butylbenzene	ND	0.0073	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Styrene	ND	0.0047	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
tert-Butylbenzene	ND	0.0044	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1,1,2-Tetrachloroethane	ND	0.0050	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1,2,2-Tetrachloroethane	ND	0.0085	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1605999

Date Reported: 7/5/2016

CLIENT: Western Refining Company

Client Sample ID: DUP02

Project: North Drainage Ditch

Collection Date: 5/19/2016

Lab ID: 1605999-024

Matrix: SOIL

Received Date: 5/20/2016 3:00:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Tetrachloroethene (PCE)	ND	0.0044	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
trans-1,2-DCE	ND	0.015	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
trans-1,3-Dichloropropene	ND	0.0077	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2,3-Trichlorobenzene	ND	0.0079	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2,4-Trichlorobenzene	ND	0.0056	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1,1-Trichloroethane	ND	0.0032	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,1,2-Trichloroethane	ND	0.0062	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Trichloroethene (TCE)	ND	0.0056	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Trichlorofluoromethane	ND	0.0039	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
1,2,3-Trichloropropane	ND	0.0091	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Vinyl chloride	ND	0.0043	0.053		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Xylenes, Total	ND	0.0099	0.11		mg/Kg-dr	1	5/25/2016 6:03:26 AM	C34454
Surr: Dibromofluoromethane	87.9		70-130		%Rec	1	5/25/2016 6:03:26 AM	C34454
Surr: 1,2-Dichloroethane-d4	77.2		70-130		%Rec	1	5/25/2016 6:03:26 AM	C34454
Surr: Toluene-d8	101		70-130		%Rec	1	5/25/2016 6:03:26 AM	C34454
Surr: 4-Bromofluorobenzene	163		70-130	S	%Rec	1	5/25/2016 6:03:26 AM	C34454
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	130	0.79	5.3		mg/Kg-dr	1	5/25/2016 6:03:26 AM	B34454
Surr: BFB	134	0	70-130	S	%Rec	1	5/25/2016 6:03:26 AM	B34454

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	Page 118 of 159
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

1605999-001H EB051916

Collected date/time: 05/19/16 18:30

SAMPLE RESULTS - 01

L837358

ONE LAB. NATIONWIDE



Wet Chemistry by Method 4500CN E-2011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Cyanide	U		0.00180	0.00500	1	06/02/2016 13:44	WG876882

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-003C ND-17 0-0.5FT

Collected date/time: 05/19/16 12:00

SAMPLE RESULTS - 02

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0403	J	0.0390	0.250	1	06/02/2016 09:31	WG876669

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl

Ai

⁹Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-004C NDD-17 1.5-2FT

Collected date/time: 05/19/16 12:15

SAMPLE RESULTS - 03

L837358

ONE LAB. NATIONWIDE.



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	06/02/2016 09:34	<u>WG876669</u>

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl

AI

⁹Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.100	J	0.0390	0.250	1	06/02/2016 09:35	WC876669

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

Al

⁹ Sc

1605999-006C NDD-15 1.5-2FT

Collected date/time: 05/19/16 12:55

SAMPLE RESULTS - 05

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Cyanide	0.104	J P1	0.0390	0.250	1	06/02/2016 09:36	WG876669

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

1605999-007C NDD-14 0-0.5FT

Collected date/time: 05/19/16 13:15

SAMPLE RESULTS - 06

L837358

ONL LAB. NATIONWIDE



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0878	J	0.0390	0.250	1	06/02/2016 09:38	WG876669

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl⁸Al⁹Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-008C NDD-14 1.5-2FT

Collected date/time: 05/19/16 13:35

SAMPLE RESULTS - 07

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0653	J	0.0390	0.250	1	05/31/2016 14:57	WG876101

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-009C NDD-13 0-0.5FT

Collected date/time: 05/19/16 13:45

SAMPLE RESULTS - 08

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0658		0.0390	0.250	1	05/31/2016 14:59	WG87610*

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-010C NDD-13 1.5-2FT

Collected date/time: 05/19/16 13:55

SAMPLE RESULTS - 09

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0605	J	0.0390	0.250	1	05/31/2016 15:04	WG876101

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl

Al

⁸Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-011C NDD-10 0-0.5FT

Collected date/time: 05/19/16 14:10

SAMPLE RESULTS - 10

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0892	J	0.0390	0.250	1	05/31/2016 15:05	WG87630

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0902	J	0.0390	0.250	1	05/31/2016 15:06	WG876101

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

AI

⁹Sc

1605999-013C NDD-12 0-0.5FT

Collected date/time: 05/19/16 15:15

SAMPLE RESULTS - 12

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.118	J	0.0390	0.250	1	05/31/2016 15:07	WG876101

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-014C NDD-12 1.5-2FT

Collected date/time: 05/19/16 15:20

SAMPLE RESULTS - 13

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0518	J	0.0390	0.250	1	05/31/2016 15:08	WG876*01

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷Gl

Al

⁹Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.116	J	0.0390	0.250	1	05/31/2016 15:09	WG876101

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

Al

⁸Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0708	J	0.0390	0.250	1	05/31/2016 15:10	WC876101

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.144	J	0.0390	0.250	1	05/31/2016 15:11	WG876101

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

1605999-018C NDD-8 1.5-2FT

Collected date/time: 05/19/16 16:20

SAMPLE RESULTS - 17

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result mg/kg	Qualifier	MDL mg/kg	RDL mg/kg	Dilution	Analysis date / time	Batch
Cyanide	0.0803	J	0.0390	0.250	1	05/31/2016 15:14	WG875101

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

Al

9 Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1605999-019C NDD-9 0-0.5FT

Collected date/time: 05/19/16 16:35

SAMPLE RESULTS - 18

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.105	J	0.0390	0.250	1	05/31/2016 15:15	WG87610*

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

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	05/31/2016 15:16	WG876101

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

ΔI

⁹Sc

Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.123	J	0.0390	0.250	1	06/02/2016 09:39	WG876669

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

AI

⁹Sc

1605999-022C NDD-5 1.5-2FT

Collected date/time: 05/19/16 17:15

SAMPLE RESULTS - 21

L837358

ONE LAB. NATIONWIDE.



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis date / time	Batch
Cyanide	0.0607	±	0.0390	0.250	1	06/02/2016 09:40	WG876669

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

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	06/02/2016 09:41	WG876669

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

Al

⁹Sc

1605999-024C DUP02

Collected date/time: 05/19/16 00:00

SAMPLE RESULTS - 23

L837358

ONE LAB, NATIONWIDE.



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	06/02/2016 23:15	WG876939

² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl

Al

⁹ Sc

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00



Method Blank (MB)

(MB) R3141194-2 06/02/16 13:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

L837657-05 Original Sample (OS) • Duplicate (DUP)

(OS) L837657-05 06/02/16 13:51 • (DUP) R3141194-5 06/02/16 13:52

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	ND	1	0.000		20

L838386-02 Original Sample (OS) • Duplicate (DUP)

(OS) L838386-02 06/02/16 14:01 • (DUP) R3141194-6 06/02/16 14:02

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	ND	1	0.000		20

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

(LCS) R3141194-4 06/02/16 13:50 • (LCSD) R3141194-3 06/02/16 13:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	0.100	0.0902	0.0922	90.0	92.0	90.0-110			2.00	20

L838426-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L838426-02 06/02/16 14:03 • (MS) R3141194-7 06/02/16 14:04 • (MSD) R3141194-8 06/02/16 14:05

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 %
Cyanide	0.200	ND	0.166	0.146	83.0	73.0	1	90.0-110	J6	J6	13.0	20

ACCOUNT:

Hall Environmental Analysis Laboratory

PROJECT:

SDG:

L837358

DATE/TIME:

06/03/16 12:00

1

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Lu

9 Sc



Method: Blank (MB)

(MB) R3140668-2 05/31/16 14:51									
MB Result		MB Qualifier		MB MDL		MB RDL			
mg/kg		mg/kg		mg/kg		mg/kg			
U		0.0390		0.250					
Analyte									
Cyanide									
L837358-07 Original Sample (OS) • Duplicate (DUP)									
(OS) L837358-07 05/31/16 14:57 • (DUP) R3140668-5 05/31/16 14:58									
Original Result		DUP Result		Dilution		DUP RPD		DUP Qualifier	
mg/kg		mg/kg		%		%		%	
0.0653		ND		1		10.0		20	
Analyte									
Cyanide									
L837358-19 Original Sample (OS) • Duplicate (DUP)									
(OS) L837358-19 05/31/16 15:16 • (DUP) R3140668-8 05/31/16 15:17									
Original Result		DUP Result		Dilution		DUP RPD		DUP Qualifier	
mg/kg		mg/kg		%		%		%	
U		ND		1		0.000		20	
Analyte									
Cyanide									
Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)									
(LCS) R3140668-4 05/31/16 14:56 • (LCSD) R3140668-3 05/31/16 14:53									
Spike Amount		LCS Result		LCSD Result		LCS Rec.		LCSD Rec.	
mg/kg		mg/kg		mg/kg		%		%	
48.4		62.6		56.6		129		117	
Analyte									
Cyanide									
L837358-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)									
(OS) L837358-08 05/31/16 14:59 • (MS) R3140668-6 05/31/16 15:00 • (MSD) R3140668-7 05/31/16 15:03									
Spike Amount		Original Result		MS Result		MSD Result		MSD Rec.	
mg/kg		mg/kg		mg/kg		mg/kg		%	
3.33		0.0658		3.13		3.07		92.0	
Analyte									
Cyanide									
				1		80.0-120		2.00	

Metrod Blank (M3)

(MB) R3141092-4 06/02/16 09:22			
Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg
Cyanide	U		0.0390
			0.250
			MB RDL

1837358-05 Original Sample (OS) • Duplicate (DUP)

(OS) L837358-05 06/02/16 09:36 • (DUP) R3141092-7 06/02/16 09:37		DUP Qualifier		DUP RPD Limits	
Analyte	Original Result	DUP Result	Dilution	DUP RPD	%
	mg/kg	mg/kg		%	
Cyanide	0.104	ND	1	47.0	20

L337397-01 Original Sample (OS) • Duplicate (DUP)

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits
					%	
Cyanide	ND	ND	10	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCS-D)

(LCS) R3141092-5 06/02/16 09:23 • (LCS) R3141092-6 06/02/16 09:24									
Analyte	Spike Amount	LCS Result	LCS Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%
Cyanide	48.4	49.0	43.2	101	89.0	50.0-150			20

LS37397-03 Original Sample (CS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L837397-03 06/02/16 10:01 - (MS) R3141092-9 06/02/16 10:02 - (MSD) R3141092-10 06/02/16 10:03												
Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Vanilone	3.78	1.10	3.76	4.23	70.0	83.0	1	80.0-120	J6		12.0	20

ACCOUNT:
Hall Environmental Analysis Laboratory

SDG:
L837358

DATE/TIME: 06/03/16 12:00



Method Blank (MB)

(MB) R3141299-1 06/02/16 23:10

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) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3141299-2 06/02/16 23:11 • (LCSD) R3141299-3 06/02/16 23:12

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	48.4	51.5	47.9	106	99.0	50.0-150			7.00	20

1

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Abbreviations and Definitions

SDG	Sample Delivery Group.
MDL	Method Detection Limit.
RDL	Reported Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
U	Not detected at the Reporting Limit (or MDL where applicable).
RPD	Relative Percent Difference.
(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
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.
Rec.	Recovery.

Qualifier	Description
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.

²Tc³Ss⁴Cn⁵Sr⁶Qc⁷GI⁸AI⁹Sc

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-B	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	B34463	RunNo:	34463					
Prep Date:		Analysis Date:	5/25/2016	SeqNo:	1062823	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	LCS-B	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	B34463	RunNo:	34463					
Prep Date:		Analysis Date:	5/25/2016	SeqNo:	1062827	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	0.52	0.0020	0.5000	0	103	85	115			
Cadmium	0.51	0.0020	0.5000	0	103	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.6	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Manganese	0.49	0.0020	0.5000	0	98.9	85	115			
Nickel	0.49	0.010	0.5000	0	98.7	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Vanadium	0.52	0.050	0.5000	0	103	85	115			
Zinc	0.52	0.010	0.5000	0	103	85	115			

Sample ID	LLCS-B	SampType:	LCSLL	TestCode:	EPA Method 200.7: Metals					
Client ID:	BatchQC	Batch ID:	B34463	RunNo:	34463					
Prep Date:		Analysis Date:	5/25/2016	SeqNo:	1062828	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.0016	0.0020	0.002000	0	77.5	50	150			J
Beryllium	0.0020	0.0020	0.002000	0	99.0	50	150			J
Cadmium	0.0020	0.0020	0.002000	0	101	50	150			
Chromium	0.0068	0.0060	0.006000	0	113	50	150			
Cobalt	0.0059	0.0060	0.006000	0	98.5	50	150			J
Iron	0.020	0.020	0.02000	0	98.2	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LLLCS-B		SampType: LCSLL		TestCode: EPA Method 200.7: Metals					
Client ID:	BatchQC		Batch ID: B34463		RunNo: 34463					
Prep Date:			Analysis Date: 5/25/2016		SeqNo: 1062828		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0022	0.0020	0.002000	0	110	50	150			
Nickel	0.0055	0.010	0.005000	0	109	50	150			J
Silver	0.0054	0.0050	0.005000	0	109	50	150			
Vanadium	0.0094	0.050	0.01000	0	93.7	50	150			J
Zinc	0.0058	0.010	0.005000	0	116	50	150			J

Sample ID	1605999-001FMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	EB051916		Batch ID: B34463		RunNo: 34463					
Prep Date:			Analysis Date: 5/25/2016		SeqNo: 1062869		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	94.7	70	130			
Beryllium	0.50	0.0020	0.5000	0	99.2	70	130			
Cadmium	0.49	0.0020	0.5000	0	98.2	70	130			
Chromium	0.48	0.0060	0.5000	0	95.3	70	130			
Cobalt	0.47	0.0060	0.5000	0	93.4	70	130			
Iron	0.48	0.020	0.5000	0	95.5	70	130			
Manganese	0.47	0.0020	0.5000	0	93.3	70	130			
Nickel	0.47	0.010	0.5000	0	93.2	70	130			
Silver	0.096	0.0050	0.1000	0	96.2	70	130			
Vanadium	0.49	0.050	0.5000	0	97.2	70	130			
Zinc	0.49	0.010	0.5000	0	98.9	70	130			

Sample ID	1605999-001FMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	EB051916		Batch ID: B34463		RunNo: 34463					
Prep Date:			Analysis Date: 5/25/2016		SeqNo: 1062870		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	103	70	130	7.94	20	
Beryllium	0.53	0.0020	0.5000	0	105	70	130	5.91	20	
Cadmium	0.53	0.0020	0.5000	0	106	70	130	7.58	20	
Chromium	0.52	0.0060	0.5000	0	103	70	130	7.90	20	
Cobalt	0.50	0.0060	0.5000	0	100	70	130	7.06	20	
Iron	0.51	0.020	0.5000	0	102	70	130	6.82	20	
Manganese	0.50	0.0020	0.5000	0	99.1	70	130	6.05	20	
Nickel	0.50	0.010	0.5000	0	101	70	130	7.70	20	
Silver	0.10	0.0050	0.1000	0	102	70	130	5.97	20	
Vanadium	0.52	0.050	0.5000	0	104	70	130	6.31	20	
Zinc	0.53	0.010	0.5000	0	107	70	130	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A34524			RunNo: 34524					
Prep Date:		Analysis Date: 5/27/2016			SeqNo: 1064899		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	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34524		RunNo: 34524					
Prep Date:			Analysis Date: 5/27/2016		SeqNo: 1064900		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	93.9	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.6	85	115			
Cadmium	0.48	0.0020	0.5000	0	95.9	85	115			
Chromium	0.47	0.0060	0.5000	0	93.4	85	115			
Cobalt	0.45	0.0060	0.5000	0	90.1	85	115			
Manganese	0.47	0.0020	0.5000	0	93.8	85	115			
Nickel	0.45	0.010	0.5000	0	90.4	85	115			
Silver	0.098	0.0050	0.1000	0	97.7	85	115			
Vanadium	0.49	0.050	0.5000	0	98.3	85	115			

Sample ID	LLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34524		RunNo: 34524					
Prep Date:			Analysis Date: 5/27/2016		SeqNo: 1064901		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	98.5	50	150			J
Beryllium	0.0021	0.0020	0.002000	0	104	50	150			
Cadmium	0.0023	0.0020	0.002000	0	115	50	150			
Chromium	0.0057	0.0060	0.006000	0	94.5	50	150			J
Cobalt	0.0062	0.0060	0.006000	0	104	50	150			
Manganese	0.0022	0.0020	0.002000	0	111	50	150			
Nickel	0.0048	0.010	0.005000	0	96.8	50	150			J
Silver	0.0051	0.0050	0.005000	0	103	50	150			
Vanadium	0.010	0.050	0.01000	0	102	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-001GMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	EB051916		Batch ID: A34524		RunNo: 34524					
Prep Date:			Analysis Date: 5/27/2016		SeqNo: 1064983		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	98.4	70	130			
Beryllium	0.51	0.0020	0.5000	0	101	70	130			
Cadmium	0.50	0.0020	0.5000	0	100	70	130			
Chromium	0.49	0.0060	0.5000	0	98.3	70	130			
Cobalt	0.49	0.0060	0.5000	0	98.7	70	130			
Manganese	0.50	0.0020	0.5000	0.0003300	101	70	130			
Nickel	0.49	0.010	0.5000	0	99.0	70	130			
Silver	0.098	0.0050	0.1000	0	97.6	70	130			
Vanadium	0.49	0.050	0.5000	0	98.4	70	130			

Sample ID	1605999-001GMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	EB051916		Batch ID: A34524		RunNo: 34524					
Prep Date:			Analysis Date: 5/27/2016		SeqNo: 1064984		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	98.3	70	130	0.0712	20	
Beryllium	0.50	0.0020	0.5000	0	101	70	130	0.690	20	
Cadmium	0.50	0.0020	0.5000	0	101	70	130	0.205	20	
Chromium	0.49	0.0060	0.5000	0	97.9	70	130	0.422	20	
Cobalt	0.49	0.0060	0.5000	0	98.9	70	130	0.223	20	
Manganese	0.50	0.0020	0.5000	0.0003300	101	70	130	0.306	20	
Nickel	0.50	0.010	0.5000	0	99.6	70	130	0.605	20	
Silver	0.098	0.0050	0.1000	0	97.7	70	130	0.133	20	
Vanadium	0.49	0.050	0.5000	0	98.4	70	130	0.0244	20	

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A34614			RunNo: 34614					
Prep Date:		Analysis Date: 6/1/2016			SeqNo: 1067276		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Zinc	ND	0.010								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34614		RunNo: 34614					
Prep Date:			Analysis Date: 6/1/2016		SeqNo: 1067277		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Zinc	0.48	0.010	0.5000	0	95.2	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LLLCS-A	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067278	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.021	0.020	0.02000	0	105	50	150			
Zinc	0.0060	0.010	0.005000	0	121	50	150			J

Sample ID	1605999-001GMS	SampType:	MS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	EB051916	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067356	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	96.3	70	130			
Zinc	0.51	0.010	0.5000	0.04062	93.6	70	130			

Sample ID	1605999-001GMSD	SampType:	MSD	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	EB051916	Batch ID:	A34614	RunNo:	34614					
Prep Date:		Analysis Date:	6/1/2016	SeqNo:	1067357	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.9	70	130	2.65	20	
Zinc	0.52	0.010	0.5000	0.04062	96.2	70	130	2.57	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Metals					
Client ID:	LCSW		Batch ID: A34508		RunNo: 34508					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064256		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	98.9	85	115			
Arsenic	0.024	0.0010	0.02500	0	97.8	85	115			
Lead	0.013	0.00050	0.01250	0	103	85	115			
Selenium	0.024	0.0010	0.02500	0	95.1	85	115			

Sample ID	LCSLL		SampType: LCSLL		TestCode: EPA 200.8: Metals					
Client ID:	BatchQC		Batch ID: A34508		RunNo: 34508					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064258		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00098	0.0010	0.001000	0	98.4	50	150			J
Arsenic	0.00098	0.0010	0.001000	0	97.6	50	150			J
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.0010	0.0010	0.001000	0	99.6	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: A34508			RunNo: 34508					
Prep Date:		Analysis Date: 5/26/2016			SeqNo: 1064261		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: C34426		RunNo: 34426					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061595		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	85	115			
Arsenic	0.025	0.0010	0.02500	0	99.1	85	115			
Lead	0.013	0.00050	0.01250	0	103	85	115			
Selenium	0.026	0.0010	0.02500	0	103	85	115			

Sample ID	LCSLL		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: C34426		RunNo: 34426					
Prep Date:			Analysis Date: 5/23/2016		SeqNo: 1061599		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0010	0.0010	0.001000	0	100	50	150			
Arsenic	0.00097	0.0010	0.001000	0	96.6	50	150			J
Lead	0.00053	0.00050	0.0005000	0	106	50	150			
Selenium	0.00097	0.0010	0.001000	0	97.1	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: C34426			RunNo: 34426					
Prep Date:		Analysis Date: 5/23/2016			SeqNo: 1061601		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25455	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25455	RunNo:	34451					
Prep Date:	5/23/2016	Analysis Date:	5/24/2016	SeqNo:	1062360	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25455	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25455	RunNo:	34451					
Prep Date:	5/23/2016	Analysis Date:	5/24/2016	SeqNo:	1062361	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34434	RunNo:	34434					
Prep Date:		Analysis Date:	5/23/2016	SeqNo:	1061743	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	LCSb	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R34434	RunNo:	34434					
Prep Date:		Analysis Date:	5/23/2016	SeqNo:	1061747	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	108	90	110			
Chloride	4.8	0.50	5.000	0	95.6	90	110			
Sulfate	9.9	0.50	10.00	0	98.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25450		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 25450		RunNo: 34465					
Prep Date:	5/23/2016		Analysis Date: 5/25/2016		SeqNo: 1062888		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.4	62.6	124			
Surr: DNOP	5.2		5.000		103	70	130			

Sample ID	LCS-25464		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 25464		RunNo: 34465					
Prep Date:	5/24/2016		Analysis Date: 5/25/2016		SeqNo: 1062889		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	62.6	124			
Surr: DNOP	5.9		5.000		117	70	130			

Sample ID	MB-25450	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID: 25450			RunNo: 34465					
Prep Date:	5/23/2016	Analysis Date: 5/25/2016			SeqNo: 1062890		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		121	70	130			

Sample ID	MB-25464		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS		Batch ID: 25464		RunNo: 34465					
Prep Date:	5/24/2016		Analysis Date: 5/25/2016		SeqNo: 1062891		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		106	70	130			

Sample ID	1605999-005BMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	NDD-15 (0-0.5')		Batch ID: 25450		RunNo: 34465					
Prep Date:	5/23/2016		Analysis Date: 5/25/2016		SeqNo: 1063771		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	61	12	60.26	0	101	33.9	141			
Surr: DNOP	6.4		6.026		106	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-005BMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	NDD-15 (0-0.5')	Batch ID:	25450	RunNo:	34465					
Prep Date:	5/23/2016	Analysis Date:	5/25/2016	SeqNo:	1063772	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	11	56.66	0	103	33.9	141	4.13	20	
Surr: DNOP	6.2		5.666		109	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25494		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 25494		RunNo: 34483					
Prep Date:	5/25/2016		Analysis Date: 5/25/2016		SeqNo: 1063745		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.98		1.000		97.7	70	141			

Sample ID	LCS-25494		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 25494		RunNo: 34489					
Prep Date:	5/25/2016		Analysis Date: 5/26/2016		SeqNo: 1064130		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	111	71.3	139			
Surr: DNOP	0.50		0.5000		101	70	141			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID: C34454			RunNo: 34454					
Prep Date:		Analysis Date: 5/24/2016			SeqNo: 1062796	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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles					
Client ID:	PBS	Batch ID: C34454			RunNo: 34454					
Prep Date:		Analysis Date: 5/24/2016			SeqNo: 1062796		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	0.50		0.5000		99.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		89.7	70	130			
Surr: Toluene-d8	0.49		0.5000		98.8	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		107	70	130			

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: Volatiles					
Client ID:	LCSS	Batch ID: C34454			RunNo: 34454					
Prep Date:		Analysis Date: 5/24/2016			SeqNo: 1062797		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	70	130			
Toluene	0.97	0.050	1.000	0	97.4	70	130			
Chlorobenzene	0.95	0.050	1.000	0	95.4	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: Volatiles					
Client ID:	LCSS	Batch ID:	C34454	RunNo:	34454					
Prep Date:		Analysis Date:	5/24/2016	SeqNo:	1062797	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.1	0.050	1.000	0	106	70	130			
Trichloroethene (TCE)	0.98	0.050	1.000	0	98.2	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		102	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.0	70	130			
Surr: Toluene-d8	0.49		0.5000		98.0	70	130			
Surr: 4-Bromofluorobenzene	0.54		0.5000		109	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	LCS-25496		SampType: LCS		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	LCSS		Batch ID: 25496		RunNo: 34484					
Prep Date:	5/25/2016		Analysis Date: 5/25/2016		SeqNo: 1063557		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.71	2.00	10.00	0	97.1	70	130			
Toluene	10.4	2.00	10.00	0	104	70	130			
Chlorobenzene	10.5	2.00	10.00	0	105	70	130			
1,1-Dichloroethene	9.50	2.00	10.00	0	95.0	68	129			
Trichloroethene (TCE)	9.51	2.00	10.00	0	95.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.07		10.00		90.7	70	130			
Surr: 4-Bromofluorobenzene	9.98		10.00		99.8	70	130			
Surr: Dibromofluoromethane	8.78		10.00		87.8	70	130			
Surr: Toluene-d8	9.84		10.00		98.4	70	130			

Sample ID	LCSD-25496	SampType: LCS			TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	LCSS	Batch ID: 25496			RunNo: 34484					
Prep Date:	5/25/2016	Analysis Date: 5/25/2016			SeqNo: 1063558		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	9.82	2.00	10.00	0	98.2	70	130	1.13	0	
Toluene	10.6	2.00	10.00	0	106	70	130	2.10	0	
Chlorobenzene	10.7	2.00	10.00	0	107	70	130	2.36	0	
1,1-Dichloroethene	9.73	2.00	10.00	0	97.3	68	129	2.39	0	
Trichloroethene (TCE)	9.65	2.00	10.00	0	96.5	70	130	1.46	0	
Surr: 1,2-Dichloroethane-d4	8.95		10.00		89.5	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.93		10.00		99.3	70	130	0	0	
Surr: Dibromofluoromethane	8.67		10.00		86.7	70	130	0	0	
Surr: Toluene-d8	9.76		10.00		97.6	70	130	0	0	

Sample ID	MB-25496	SampType: MBLK			TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS	Batch ID: 25496			RunNo: 34484					
Prep Date:	5/25/2016	Analysis Date: 5/25/2016			SeqNo: 1063559		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	2.00								
Toluene	ND	2.00								
Ethylbenzene	ND	2.00								
Methyl tert-butyl ether (MTBE)	ND	2.00								
1,2,4-Trimethylbenzene	ND	2.00								
1,3,5-Trimethylbenzene	ND	2.00								
1,2-Dichloroethane (EDC)	ND	2.00								
1,2-Dibromoethane (EDB)	ND	2.00								
Naphthalene	ND	2.00								
1-Methylnaphthalene	ND	4.00								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25496	SampType:	MBLK	TestCode:	Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS	Batch ID:	25496	RunNo:	34484					
Prep Date:	5/25/2016	Analysis Date:	5/25/2016	SeqNo:	1063559	Units:	µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	4.00								
Acetone	ND	10.0								
Bromobenzene	ND	2.00								
Bromodichloromethane	ND	2.00								
Bromoform	ND	2.00								
Bromomethane	ND	3.00								
2-Butanone	ND	10.0								
Carbon disulfide	ND	10.0								
Carbon tetrachloride	ND	2.00								
Chlorobenzene	ND	2.00								
Chloroethane	ND	2.00								
Chloroform	ND	2.00								
Chloromethane	ND	2.00								
2-Chlorotoluene	ND	2.00								
4-Chlorotoluene	ND	2.00								
cis-1,2-DCE	ND	2.00								
cis-1,3-Dichloropropene	ND	2.00								
1,2-Dibromo-3-chloropropane	ND	2.00								
Dibromochloromethane	ND	2.00								
Dibromomethane	ND	2.00								
1,2-Dichlorobenzene	ND	2.00								
1,3-Dichlorobenzene	ND	2.00								
1,4-Dichlorobenzene	ND	2.00								
Dichlorodifluoromethane	ND	2.00								
1,1-Dichloroethane	ND	2.00								
1,1-Dichloroethene	ND	2.00								
1,2-Dichloropropane	ND	2.00								
1,3-Dichloropropane	ND	2.00								
2,2-Dichloropropane	ND	2.00								
1,1-Dichloropropene	ND	2.00								
Hexachlorobutadiene	ND	2.00								
2-Hexanone	ND	10.0								
Isopropylbenzene	ND	2.00								
4-Isopropyltoluene	ND	2.00								
4-Methyl-2-pentanone	ND	10.0								
Methylene chloride	ND	3.00								
n-Butylbenzene	ND	2.00								
n-Propylbenzene	ND	2.00								
sec-Butylbenzene	ND	2.00								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25496		SampType: MBLK		TestCode: Method 8260B/5035LOW: VOLATILES					
Client ID:	PBS		Batch ID: 25496		RunNo: 34484					
Prep Date:	5/25/2016		Analysis Date: 5/25/2016		SeqNo: 1063559		Units: µg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Styrene	ND	2.00								
tert-Butylbenzene	ND	2.00								
1,1,1,2-Tetrachloroethane	ND	2.00								
1,1,2,2-Tetrachloroethane	ND	2.00								
Tetrachloroethene (PCE)	ND	2.00								
trans-1,2-DCE	ND	2.00								
trans-1,3-Dichloropropene	ND	2.00								
1,2,3-Trichlorobenzene	ND	2.00								
1,2,4-Trichlorobenzene	ND	2.00								
1,1,1-Trichloroethane	ND	2.00								
1,1,2-Trichloroethane	ND	2.00								
Trichloroethene (TCE)	ND	2.00								
Trichlorofluoromethane	ND	2.00								
1,2,3-Trichloropropane	ND	2.00								
Vinyl chloride	ND	2.00								
Xylenes, Total	ND	2.00								
Surr: 1,2-Dichloroethane-d4	8.90		10.00		89.0	70	130			
Surr: 4-Bromofluorobenzene	9.94		10.00		99.4	70	130			
Surr: Dibromofluoromethane	8.66		10.00		86.6	70	130			
Surr: Toluene-d8	9.75		10.00		97.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	rb1	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A34513	RunNo:	34513					
Prep Date:		Analysis Date:	5/26/2016	SeqNo:	1064513	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID rb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A34513			RunNo: 34513						
Prep Date:	Analysis Date: 5/26/2016			SeqNo: 1064513		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	0.45	3.0								J
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: A34513			RunNo: 34513						
Prep Date:	Analysis Date: 5/26/2016			SeqNo: 1064514		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.7	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	20	1.0	20.00	0	99.4	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: A34513			RunNo: 34513					
Prep Date:		Analysis Date: 5/26/2016			SeqNo: 1064514		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.6	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		112	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	11		10.00		106	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25469	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25469	RunNo:	34461					
Prep Date:	5/24/2016	Analysis Date:	5/25/2016	SeqNo:	1063511	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	0.15	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	0.12	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	0.087	0.40								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25469	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25469	RunNo:	34461					
Prep Date:	5/24/2016	Analysis Date:	5/25/2016	SeqNo:	1063511	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								
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	2.0		3.330		60.1	28.3	102			
Surr: Phenol-d5	2.2		3.330		65.9	35.7	103			
Surr: 2,4,6-Tribromophenol	2.5		3.330		75.8	35.2	108			
Surr: Nitrobenzene-d5	1.1		1.670		68.4	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		73.2	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		64.4	15	91.7			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25469		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSS		Batch ID: 25469			RunNo: 34461				
Prep Date:	5/24/2016		Analysis Date: 5/25/2016			SeqNo: 1063512		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	70.0	45.8	99.8			
4-Chloro-3-methylphenol	2.2	0.50	3.330	0	66.5	51.5	103			
2-Chlorophenol	1.8	0.20	3.330	0	54.1	46.5	105			
1,4-Dichlorobenzene	0.86	0.20	1.670	0	51.3	45.5	103			
2,4-Dinitrotoluene	1.1	0.50	1.670	0	66.9	36	87.2			
N-Nitrosodi-n-propylamine	0.80	0.20	1.670	0	48.1	47.3	104			
4-Nitrophenol	2.2	0.25	3.330	0	65.7	47.3	95.3			
Pentachlorophenol	1.9	0.40	3.330	0	56.6	38.7	89.3			
Phenol	1.8	0.20	3.330	0	54.5	47.8	106			
Pyrene	1.2	0.20	1.670	0	72.6	33.4	105			
1,2,4-Trichlorobenzene	1.0	0.20	1.670	0	61.4	50.4	115			
Surr: 2-Fluorophenol	1.6		3.330		47.4	28.3	102			
Surr: Phenol-d5	1.9		3.330		56.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.3	35.2	108			
Surr: Nitrobenzene-d5	1.0		1.670		59.7	24	118			
Surr: 2-Fluorobiphenyl	1.2		1.670		70.2	35.4	111			
Surr: 4-Terphenyl-d14	0.74		1.670		44.5	15	91.7			

Sample ID	mb-25502		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBS		Batch ID: 25502		RunNo: 34583					
Prep Date:	5/25/2016		Analysis Date: 5/31/2016		SeqNo: 1066474		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	0.091	0.50								J
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	0.19	0.50								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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25502	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBS	Batch ID:	25502	RunNo:	34583					
Prep Date:	5/25/2016	Analysis Date:	5/31/2016	SeqNo:	1066474	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	0.14	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								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25502		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBS		Batch ID: 25502		RunNo: 34583					
Prep Date:	5/25/2016		Analysis Date: 5/31/2016		SeqNo: 1066474		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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		62.9	28.3	102			
Surr: Phenol-d5	2.3		3.330		69.5	35.7	103			
Surr: 2,4,6-Tribromophenol	3.4		3.330		102	35.2	108			
Surr: Nitrobenzene-d5	1.3		1.670		76.2	24	118			
Surr: 2-Fluorobiphenyl	1.4		1.670		85.4	35.4	111			
Surr: 4-Terphenyl-d14	1.1		1.670		67.5	15	91.7			

Sample ID	lcs-25502		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS		Batch ID: 25502		RunNo: 34583					
Prep Date:	5/25/2016		Analysis Date: 5/31/2016		SeqNo: 1066475		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.98	0.20	1.670	0	58.5	45.8	99.8			
4-Chloro-3-methylphenol	2.0	0.50	3.330	0	60.3	51.5	103			
2-Chlorophenol	1.8	0.20	3.330	0	54.9	46.5	105			
1,4-Dichlorobenzene	0.94	0.20	1.670	0	56.3	45.5	103			
2,4-Dinitrotoluene	0.90	0.50	1.670	0	54.1	36	87.2			
N-Nitrosodi-n-propylamine	0.82	0.20	1.670	0	49.0	47.3	104			
4-Nitrophenol	1.8	0.25	3.330	0	53.9	47.3	95.3			
Pentachlorophenol	1.9	0.40	3.330	0	58.1	38.7	89.3			
Phenol	1.8	0.20	3.330	0	53.8	47.8	106			
Pyrene	0.96	0.20	1.670	0	57.8	33.4	105			
1,2,4-Trichlorobenzene	0.96	0.20	1.670	0	57.4	50.4	115			
Surr: 2-Fluorophenol	1.6		3.330		48.9	28.3	102			
Surr: Phenol-d5	1.9		3.330		56.2	35.7	103			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25502		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSS		Batch ID: 25502			RunNo: 34583				
Prep Date:	5/25/2016		Analysis Date: 5/31/2016			SeqNo: 1066475		Units: mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2,4,6-Tribromophenol	2.3		3.330		69.4	35.2	108			
Surr: Nitrobenzene-d5	0.96		1.670		57.5	24	118			
Surr: 2-Fluorobiphenyl	1.0		1.670		60.6	35.4	111			
Surr: 4-Terphenyl-d14	0.79		1.670		47.1	15	91.7			

Sample ID	1605999-006bms		SampType: MS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	NDD-15 (1.5-2')		Batch ID: 25502			RunNo: 34583				
Prep Date:	5/25/2016		Analysis Date: 5/31/2016			SeqNo: 1066512		Units: mg/Kg-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.24	2.035	0	60.8	39.3	86.4			
4-Chloro-3-methylphenol	2.3	0.61	4.058	0	57.3	37.5	96.4			
2-Chlorophenol	2.3	0.24	4.058	0	56.8	37.4	90.6			
1,4-Dichlorobenzene	1.0	0.24	2.035	0	49.3	31.7	85			
2,4-Dinitrotoluene	1.1	0.61	2.035	0	54.7	26.4	86			
N-Nitrosodi-n-propylamine	1.1	0.24	2.035	0	52.1	43.5	83			
4-Nitrophenol	2.2	0.30	4.058	0	53.5	32.7	98			
Pentachlorophenol	2.4	0.49	4.058	0	58.4	26.6	87.4			
Phenol	2.3	0.24	4.058	0	55.8	40.5	85.3			
Pyrene	1.1	0.24	2.035	0	52.4	23.2	93.9			
1,2,4-Trichlorobenzene	1.1	0.24	2.035	0	55.4	38.7	99			
Surr: 2-Fluorophenol	1.8		4.058		44.9	28.3	102			
Surr: Phenol-d5	2.3		4.058		56.0	35.7	103			
Surr: 2,4,6-Tribromophenol	2.8		4.058		68.9	35.2	108			
Surr: Nitrobenzene-d5	1.2		2.035		60.1	24	118			
Surr: 2-Fluorobiphenyl	1.2		2.035		60.7	35.4	111			
Surr: 4-Terphenyl-d14	0.86		2.035		42.2	15	91.7			

Sample ID	1605999-006bmsd		SampType: MSD			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	NDD-15 (1.5-2')		Batch ID: 25502			RunNo: 34583				
Prep Date:	5/25/2016		Analysis Date: 5/31/2016			SeqNo: 1066521		Units: mg/Kg-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	1.2	0.24	2.028	0	61.2	39.3	86.4	0.225	30.2	
4-Chloro-3-methylphenol	2.4	0.61	4.043	0	60.5	37.5	96.4	5.04	37.2	
2-Chlorophenol	2.4	0.24	4.043	0	59.7	37.4	90.6	4.62	48	
1,4-Dichlorobenzene	1.1	0.24	2.028	0	54.7	31.7	85	10.1	40.6	
2,4-Dinitrotoluene	1.3	0.61	2.028	0	61.9	26.4	86	12.0	47.7	
N-Nitrosodi-n-propylamine	1.1	0.24	2.028	0	53.3	43.5	83	1.91	52.5	
4-Nitrophenol	2.6	0.30	4.043	0	63.3	32.7	98	16.4	36.6	

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-006bmsd	SampType:	MSD	TestCode:	EPA Method 8270C: Semivolatiles						
Client ID:	NDD-15 (1.5-2')	Batch ID:	25502	RunNo:	34583						
Prep Date:	5/25/2016	Analysis Date:	5/31/2016	SeqNo:	1066521	Units:	mg/Kg-dry				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Pentachlorophenol	2.5	0.49	4.043	0	61.6	26.6	87.4	5.02	65.5		
Phenol	2.4	0.24	4.043	0	59.2	40.5	85.3	5.57	44		
Pyrene	1.3	0.24	2.028	0	61.9	23.2	93.9	16.3	42.1		
1,2,4-Trichlorobenzene	1.2	0.24	2.028	0	60.5	38.7	99	8.46	31.5		
Surr: 2-Fluorophenol	2.0		4.043		50.5	28.3	102	0	0		
Surr: Phenol-d5	2.5		4.043		62.9	35.7	103	0	0		
Surr: 2,4,6-Tribromophenol	2.7		4.043		67.5	35.2	108	0	0		
Surr: Nitrobenzene-d5	1.2		2.028		59.8	24	118	0	0		
Surr: 2-Fluorobiphenyl	1.3		2.028		61.8	35.4	111	0	0		
Surr: 4-Terphenyl-d14	0.90		2.028		44.3	15	91.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25437		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 25437		RunNo: 34450					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062341		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	6.7	20								J
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	3.8	10								J
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	4.8	10								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	mb-25437		SampType: MBLK			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	PBW		Batch ID: 25437			RunNo: 34450				
Prep Date:	5/23/2016		Analysis Date: 5/24/2016			SeqNo: 1062341	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	120		200.0		57.6	15	123			
Surr: Phenol-d5	87		200.0		43.6	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		79.7	18.4	134			
Surr: Nitrobenzene-d5	75		100.0		74.9	28.8	134			
Surr: 2-Fluorobiphenyl	71		100.0		71.3	35.9	125			
Surr: 4-Terphenyl-d14	65		100.0		65.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	Ics-25437		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25437		RunNo: 34450					
Prep Date:	5/23/2016		Analysis Date: 5/24/2016		SeqNo: 1062342		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	84	10	100.0	0	83.7	35	113			
4-Chloro-3-methylphenol	130	10	200.0	0	66.0	40.7	114			
2-Chlorophenol	130	10	200.0	0	64.4	37.6	113			
1,4-Dichlorobenzene	69	10	100.0	0	68.7	37.7	106			
2,4-Dinitrotoluene	70	10	100.0	0	70.1	37	91			
N-Nitrosodi-n-propylamine	74	10	100.0	0	74.5	45.4	105			
4-Nitrophenol	73	10	200.0	0	36.4	33.4	104			
Pentachlorophenol	120	20	200.0	0	58.0	29.5	94.9			
Phenol	77	10	200.0	0	38.4	30.6	119			
Pyrene	82	10	100.0	0	82.0	26.2	120			
1,2,4-Trichlorobenzene	82	10	100.0	0	81.6	39.9	125			
Surr: 2-Fluorophenol	95		200.0		47.6	15	123			
Surr: Phenol-d5	75		200.0		37.5	4.13	124			
Surr: 2,4,6-Tribromophenol	150		200.0		74.3	18.4	134			
Surr: Nitrobenzene-d5	68		100.0		68.2	28.8	134			
Surr: 2-Fluorobiphenyl	70		100.0		70.0	35.9	125			
Surr: 4-Terphenyl-d14	61		100.0		61.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25683		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 25683		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1071992		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	0.00087	0.033								J

Sample ID	LCS-25683		SampType: LCS		TestCode: EPA Method 7471: Mercury					
Client ID:	LCSS		Batch ID: 25683		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1071993		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	102	80	120			

Sample ID	1605999-023BMS		SampType: MS		TestCode: EPA Method 7471: Mercury					
Client ID:	DUP01		Batch ID: 25683		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1071995		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.22	0.040	0.2004	0.01361	101	75	125			

Sample ID	1605999-023BMSD		SampType: MSD		TestCode: EPA Method 7471: Mercury					
Client ID:	DUP01		Batch ID: 25683		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1071996		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.22	0.040	0.1998	0.01361	103	75	125	1.74	20	

Sample ID	MB-25682		SampType: MBLK		TestCode: EPA Method 7471: Mercury					
Client ID:	PBS		Batch ID: 25682		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1072005		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.00066	0.033								J

Sample ID	LCS-25682		SampType: LCS		TestCode: EPA Method 7471: Mercury					
Client ID:	LCSS		Batch ID: 25682		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1072006		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.19	0.033	0.1667	0	112	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
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-003BMS	SampType: MS			TestCode: EPA Method 7471: Mercury					
Client ID:	NDD-17 (0-0.5')	Batch ID: 25682			RunNo: 34752					
Prep Date:	6/6/2016	Analysis Date: 6/7/2016			SeqNo: 1072008		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.23	0.039	0.1990	0.02633	101	75	125			

Sample ID	1605999-003BMSD		SampType: MSD		TestCode: EPA Method 7471: Mercury					
Client ID:	NDD-17 (0-0.5')		Batch ID: 25682		RunNo: 34752					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1072009		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.23	0.039	0.1989	0.02633	102	75	125	1.36	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25680	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID:	25680	RunNo:	34768					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1072826	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	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	1.5	2.5								J
Lead	ND	0.25								
Manganese	ND	0.10								
Nickel	ND	0.50								
Selenium	ND	2.5								
Vanadium	ND	2.5								
Zinc	ND	2.5								

Sample ID	LCS-25680	SampType:	LCS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	LCSS	Batch ID:	25680	RunNo:	34768					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1072827	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			
Arsenic	25	2.5	25.00	0	101	80	120			
Barium	24	0.10	25.00	0	95.6	80	120			
Beryllium	24	0.15	25.00	0	97.6	80	120			
Cadmium	24	0.10	25.00	0	97.3	80	120			
Chromium	24	0.30	25.00	0	95.1	80	120			
Cobalt	24	0.30	25.00	0	94.0	80	120			
Iron	25	2.5	25.00	0	98.2	80	120			
Lead	23	0.25	25.00	0	91.5	80	120			
Manganese	24	0.10	25.00	0	96.3	80	120			
Nickel	24	0.50	25.00	0	95.2	80	120			
Selenium	24	2.5	25.00	0	97.2	80	120			
Vanadium	25	2.5	25.00	0	101	80	120			
Zinc	24	2.5	25.00	0	96.4	80	120			

Sample ID	MB-25681	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID:	25681	RunNo:	34768					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1072828	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	MB-25681	SampType: MBLK			TestCode: EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID: 25681			RunNo: 34768					
Prep Date:	6/6/2016	Analysis Date: 6/7/2016			SeqNo: 1072828		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	ND	0.10								
Chromium	ND	0.30								
Cobalt	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	0.064	0.10								J
Nickel	ND	0.50								
Selenium	ND	2.5								
Silver	ND	0.25								
Vanadium	ND	2.5								
Zinc	0.59	2.5								J

Sample ID	LCS-25681		SampType: LCS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	LCSS		Batch ID: 25681		RunNo: 34768					
Prep Date:	6/6/2016		Analysis Date: 6/7/2016		SeqNo: 1072829		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	23	2.5	25.00	0	92.4	80	120			
Arsenic	25	2.5	25.00	0	99.2	80	120			
Barium	24	0.10	25.00	0	94.2	80	120			
Beryllium	25	0.15	25.00	0	98.3	80	120			
Cadmium	24	0.10	25.00	0	97.1	80	120			
Chromium	24	0.30	25.00	0	95.0	80	120			
Cobalt	24	0.30	25.00	0	94.1	80	120			
Iron	24	2.5	25.00	0	97.2	80	120			
Lead	23	0.25	25.00	0	92.4	80	120			
Manganese	24	0.10	25.00	0	95.2	80	120			
Nickel	24	0.50	25.00	0	94.1	80	120			
Selenium	25	2.5	25.00	0	99.2	80	120			
Silver	4.8	0.25	5.000	0	95.5	80	120			
Vanadium	25	2.5	25.00	0	98.9	80	120			
Zinc	24	2.5	25.00	0	97.9	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-023BMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	DUP01	Batch ID:	25681	RunNo:	34768					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1072933	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	370	0.24	30.15	340.0	103	75	125			

Sample ID	1605999-023BMSD	SampType:	MSD	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	DUP01	Batch ID:	25681	RunNo:	34768					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1072934	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	560	0.25	30.80	340.0	710	75	125	40.4	20	RS

Sample ID	MB-25680	SampType:	MBLK	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	PBS	Batch ID:	25680	RunNo:	34800					
Prep Date:	6/6/2016	Analysis Date:	6/9/2016	SeqNo:	1073893	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.25								

Sample ID	LCS-25680	SampType:	LCS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	LCSS	Batch ID:	25680	RunNo:	34800					
Prep Date:	6/6/2016	Analysis Date:	6/9/2016	SeqNo:	1073894	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	5.0	0.25	5.000	0	101	80	120			

Sample ID	1605999-023BMS	SampType:	MS	TestCode:	EPA Method 6010B: Soil Metals					
Client ID:	DUP01	Batch ID:	25681	RunNo:	34800					
Prep Date:	6/6/2016	Analysis Date:	6/9/2016	SeqNo:	1073898	Units:	mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	9.4	3.0	30.15	2.185	23.8	75	125			S
Arsenic	25	3.0	30.15	1.196	77.4	75	125			
Beryllium	23	0.18	30.15	0.7049	74.8	75	125			S
Cadmium	23	0.12	30.15	0	75.5	75	125			
Chromium	30	0.36	30.15	7.977	72.9	75	125			S
Cobalt	24	0.36	30.15	4.065	67.2	75	125			S
Lead	25	0.30	30.15	5.633	64.3	75	125			S
Nickel	28	0.60	30.15	7.457	68.8	75	125			S
Selenium	21	3.0	30.15	0	68.8	75	125			S
Silver	4.7	0.30	6.030	0	77.5	75	125			
Vanadium	39	3.0	30.15	14.63	79.7	75	125			
Zinc	36	3.0	30.15	15.78	68.1	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-023BMSD	SampType:	MSD		TestCode:	EPA Method 6010B: Soil Metals				
Client ID:	DUP01	Batch ID:	25681		RunNo:	34800				
Prep Date:	6/6/2016	Analysis Date:	6/9/2016		SeqNo:	1073899		Units: mg/Kg-dry		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	11	3.1	30.80	2.185	27.0	75	125	11.7	20	S
Arsenic	27	3.1	30.80	1.196	84.9	75	125	10.8	20	
Beryllium	26	0.18	30.80	0.7049	83.2	75	125	12.4	20	
Cadmium	26	0.12	30.80	0	83.1	75	125	11.8	20	
Chromium	33	0.37	30.80	7.977	80.9	75	125	9.42	20	
Cobalt	27	0.37	30.80	4.065	73.9	75	125	9.85	20	S
Lead	28	0.31	30.80	5.633	71.1	75	125	9.53	20	S
Nickel	31	0.62	30.80	7.457	74.9	75	125	7.97	20	S
Selenium	24	3.1	30.80	0	77.8	75	125	14.4	20	
Silver	5.2	0.31	6.161	0	83.6	75	125	9.75	20	
Vanadium	44	3.1	30.80	14.63	94.4	75	125	12.3	20	
Zinc	39	3.1	30.80	15.78	75.1	75	125	6.91	20	

Sample ID	1605999-003BMS		SampType: MS		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	NDD-17 (0-0.5')		Batch ID: 25680		RunNo: 34850					
Prep Date:	6/6/2016		Analysis Date: 6/13/2016		SeqNo: 1076260		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	11	15	29.70	0	37.3	75	125			JS
Arsenic	29	15	29.70	0	98.3	75	125			
Barium	360	0.59	29.70	386.4	-89.0	75	125			S
Beryllium	31	0.89	29.70	2.003	98.7	75	125			
Cadmium	30	0.59	29.70	0	99.8	75	125			
Chromium	53	1.8	29.70	28.63	82.2	75	125			
Cobalt	36	1.8	29.70	10.46	87.5	75	125			
Lead	34	1.5	29.70	8.747	86.1	75	125			
Nickel	45	3.0	29.70	21.36	80.4	75	125			
Selenium	25	15	29.70	0	83.6	75	125			
Silver	5.6	1.5	5.939	0	94.8	75	125			
Vanadium	59	15	29.70	35.44	80.0	75	125			
Zinc	60	15	29.70	37.68	73.7	75	125			S

Sample ID	1605999-003BMSD		SampType: MSD		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	NDD-17 (0-0.5')		Batch ID: 25680		RunNo: 34850					
Prep Date:	6/6/2016		Analysis Date: 6/13/2016		SeqNo: 1076261		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	12	15	29.18	0	40.2	75	125	5.74	20	JS
Arsenic	29	15	29.18	0	100	75	125	0.0852	20	
Barium	400	0.58	29.18	386.4	40.5	75	125	10.1	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-003BMSD		SampType: MSD		TestCode: EPA Method 6010B: Soil Metals					
Client ID:	NDD-17 (0-0.5')		Batch ID: 25680		RunNo: 34850					
Prep Date:	6/6/2016		Analysis Date: 6/13/2016		SeqNo: 1076261		Units: mg/Kg-dry			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	32	0.88	29.18	2.003	102	75	125	1.25	20	
Cadmium	30	0.58	29.18	0	103	75	125	1.76	20	
Chromium	52	1.8	29.18	28.63	80.9	75	125	1.56	20	
Cobalt	37	1.8	29.18	10.46	90.1	75	125	0.840	20	
Lead	36	1.5	29.18	8.747	93.5	75	125	4.91	20	
Nickel	46	2.9	29.18	21.36	84.1	75	125	1.48	20	
Selenium	28	15	29.18	0	94.8	75	125	10.8	20	
Silver	5.9	1.5	5.836	0	100	75	125	3.79	20	
Vanadium	59	15	29.18	35.44	80.1	75	125	0.677	20	
Zinc	61	15	29.18	37.68	78.7	75	125	1.81	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: PBS	Batch ID: A34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/24/2016			SeqNo: 1062581		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		101	70	130			

Sample ID 2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: LCSS	Batch ID: A34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/24/2016			SeqNo: 1062582		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	62.9	123			
Surr: BFB	500		500.0		99.4	70	130			

Sample ID rb1	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: PBS	Batch ID: B34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/25/2016			SeqNo: 1062685		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	510		500.0		103	70	130			

Sample ID 2.5ug gro lcs2	SampType: LCS			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: LCSS	Batch ID: B34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/24/2016			SeqNo: 1062686		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	97.4	62.9	123			
Surr: BFB	500		500.0		100	70	130			

Sample ID 1605999-012bms2	SampType: MS			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: NDD-10 (1.5-2')	Batch ID: B34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/25/2016			SeqNo: 1062688		Units: mg/Kg-dry				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	3.7	18.29	0.6073	115	52.3	132			
Surr: BFB	380		365.8		104	70	130			

Sample ID 1605999-012BMSD2	SampType: MSD			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: NDD-10 (1.5-2')	Batch ID: B34454			RunNo: 34454						
Prep Date:	Analysis Date: 5/25/2016			SeqNo: 1062689		Units: mg/Kg-dry				
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

Sample ID	1605999-012BMSD2		SampType:	MSD		TestCode:	EPA Method 8015D Mod: Gasoline Range				
Client ID:	NDD-10 (1.5-2')		Batch ID:	B34454		RunNo:	34454				
Prep Date:			Analysis Date:	5/25/2016		SeqNo:	1062689		Units:	mg/Kg-dry	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	19	3.7	18.29	0.6073	98.1	52.3	132	15.0	20		
Surr: BFB	360		365.8		99.4	70	130	0	0		

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	PBS	Batch ID: A34485			RunNo: 34485					
Prep Date:		Analysis Date: 5/25/2016			SeqNo: 1063572		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	500		500.0		101	70	130			

Sample ID	2.5ug gro lcs		SampType: LCS		TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID:	LCSS		Batch ID: A34485		RunNo: 34485					
Prep Date:			Analysis Date: 5/25/2016		SeqNo: 1063573		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	103	62.9	123			
Surr: BFB	510		500.0		101	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1605999

05-Jul-16

Client: Western Refining Company

Project: North Drainage Ditch

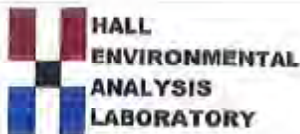
Sample ID	rb1		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: C34513		RunNo: 34513					
Prep Date:			Analysis Date: 5/26/2016		SeqNo: 1064532		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.7		10.00		96.9	70	130			

Sample ID	2.5ug gro lcs	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID: C34513			RunNo: 34513					
Prep Date:		Analysis Date: 5/26/2016			SeqNo: 1064533		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	103	75.4	118			
Surr: BFB	10		10.00		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: Western Refining Gallup

Work Order Number: 1605999

ReptNo: 1

Received by/date:

AF

05/20/16

Logged By: Lindsay Mangin

5/20/2016 3:00:00 PM

Lindsay Mangin

Completed By: Lindsay Mangin

5/21/2016 8:25:22 AM

Lindsay Mangin

Reviewed By:

JA

05/23/16

Chain of Custody

1. Custody seals intact on sample bottles?

Yes ☒

No ☐

Not Present ☐

2. Is Chain of Custody complete?

Yes ☒

No ☐

Not Present ☐

3. How was the sample delivered?

Courier

Log In

4. Was an attempt made to cool the samples?

Yes ☒

No ☐

NA ☐

5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ?

Yes ☒

No ☐

NA ☐

6. Sample(s) in proper container(s)?

Yes ☒

No ☐

7. Sufficient sample volume for indicated test(s)?

Yes ☒

No ☐

8. Are samples (except VOA and ONG) properly preserved?

Yes ☒

No ☐

9. Was preservative added to bottles?

Yes ☐

No ☒

NA ☐

10. VOA vials have zero headspace?

Yes ☒

No ☐

No VOA Vials ☐

11. Were any sample containers received broken?

Yes ☐

No ☒

of preserved
bottles checked
for pH

12. Does paperwork match bottle labels?

Yes ☒

No ☐

(Note discrepancies on chain of custody)

13. Are matrices correctly identified on Chain of Custody?

Yes ☒

No ☐

Adjusted?

14. Is it clear what analyses were requested?

Yes ☒

No ☐

15. Were all holding times able to be met?

Yes ☒

No ☐

(If no, notify customer for authorization.)

Checked by:

21
(<2 or >12 unless noted)
NO
[Signature]

Special Handling (if applicable)

16. 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:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.

GALLUP REFINERY

Mailing Address: 92 GIANT CROSSING RD

GALLUP, NM 87301

Phone #: 505-722-0217

email or Fax#: ED. RIEGE@WNR.COM

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☒ EDD (Type) EXCEL

Date	Time	Matrix	Sample Request ID
5-19-16	1830	WATER	EBO51916

↓	↓	↓	↓
5-19-16	-	MEOH	MEOH BLANK

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

NORTH DRAINAGE DITCH

Project #:

Project Manager:

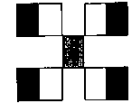
ED RIEGE

Sampler: TRACY PAYNE

On Ice: ☒ Yes ☐ No

Sample Temperature: 2-2

Container Type and #	Preservative Type	HEAL No.
40 ML VOA-6	HCL	11605999
1 LITER AMBER-2	NEAT	-001
250 ML AMBER-1	NEAT	-001
100 ML PLASTIC-1	HNO3	-001
500 ML PLASTIC-1	HNO3	-001
500 ML PLASTIC-1	NAOH	-001
VIALS-2	MEOH	-002



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 + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1) Diesel	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	PCPA & Metals Cyanide	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals (TOTAL Dissolved)	GEN CHEM	(SEE ATTACHED LIST)	Air Bubbles (Y or N)
		✓							✓		✓	✓	✓	

Remarks:

PLEASE INCLUDE J FLAGS AND MDL

*-001 NO CRU LAG 05/23/16

Date: <u>5/24/16</u>	Time: <u>900</u>	Relinquished by: <u>[Signature]</u>	Received by: <u>[Signature]</u>	Date: <u>5/24/16</u>	Time: <u>1200</u>
Date: <u>5/24/16</u>	Time: <u>300</u>	Relinquished by: <u>[Signature]</u>	Received by: <u>[Signature]</u>	Date: <u>5/24/16</u>	Time: <u>1500</u>

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.

Chain-of-Custody Record

Client: **WESTERN REFINING SW, INC.**
GALLUP REFINERY
 Mailing Address: **92 GIANT CROSSING RD**
GALLUP, NM 87301
 Phone #: **505-722-0217**
 email or Fax#: **ED.RIEGE@WNR.COM**

QA/QC Package:
☐ Standard
☒ Level 4 (Full Validation)
 Accreditation
☐ NELAP
☐ Other
☒ EDD (Type) **EXCEL**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
5/19/16	1315	SOIL	NDD-14 (0-0.5')	JARS-3	NEAT	-007
	↓			VIALS-2	MEOH	-007
	↓			VIALS-2	SOBI	-007
	↓			JARS-3	NEAT	-008
	↓			VIALS-2	MEOH	-008
	↓			VIALS-2	SOBI	-008
	↓			JARS-3	NEAT	-009
	↓			VIALS-2	MEOH	-009
	↓			VIALS-2	SOBI	-009
	↓			JARS-3	NEAT	-010
	↓			VIALS-2	MEOH	-010
	↓			VIALS-2	SOBI	-010

Relinquished by: **5/19/16 900**
 Date: **5/19/16**
 Relinquished by: **5/20/16 1300**
 Date: **5/20/16**

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

NORTH DRAINAGE DITCH

Project #:

Project Manager:

ED RIEGE

Sampler: **TRACY PAYNE**

On Ice: ☒ Yes ☐ No

Sample Temperature: **2, 2**



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 + 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)	✓		✓		✓		✓		✓		✓		✓
Metals & Cyanide	✓				✓				✓				
(SEE ATTACHED LIST)													
Air Bubbles (Y or N)													

Chain-of-Custody Record

Client: **WESTERN REFINING SW, INC.**
GALLUP REFINERY
Mailing Address: **92 GIANT CROSSING RD**
GALLUP, NM 87301
Phone #: **505-722-0217**
email or Fax#: **ED. RIEGE @WNR.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:
ED RIEGE
Sampler: **TRACY PAYNE**
On Ice: ☒ Yes ☐ No
Sample Temperature: **2.2**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
5-19-16	1635	SOIL	NDD-9 (0-0.5')	JARS-3	NEAT	-019
	↓			VIALS-2	MEOH	-019
	↓			VIALS-2	SOBI	-019
1650			NDD-9 (1.5-2')	JARS-3	NEAT	-020
↓				VIALS-2	MEOH	-020
↓				VIALS-2	SOBI	-020
1700			NDD-5 (0-0.5')	JARS-3	NEAT	-021
↓				VIALS-2	MEOH	-021
↓				VIALS-2	SOBI	-021
1715			NDD-5 (1.5-2')	JARS-3	NEAT	-022
↓				VIALS-2	MEOH	-022
↓				VIALS-2	SOBI	-022

Date: 5-20-16 900
Relinquished by: [Signature]
Date: 5/20/16 300
Relinquished by: [Signature]



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 + 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)
									Metals & Cyanide
									(SEE ATTACHED LABS)
									Air Bubbles (Y or N)

Remarks: **PLEASE INCLUDE IT FLAGS AND MDL**

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.

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES
TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

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
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

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR SOIL SAMPLES

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
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



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

July 12, 2016

Ed Riege

Western Refining Company

Rt. 3 Box 7

Gallup, NM 87301

TEL: (505) 722-0231

FAX

RE: Well Installation

OrderNo.: 1606136

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 7 sample(s) on 6/1/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-56

Project: Well Installation

Collection Date: 6/1/2016 8:15:00 AM

Lab ID: 1606136-001

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	1.4	0.69	1.0		mg/L	1	6/6/2016 1:14:49 PM	25672
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/6/2016 1:14:49 PM	25672
Surr: DNOP	114	0	70-141		%Rec	1	6/6/2016 1:14:49 PM	25672
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	0.49	0.025	0.050		mg/L	1	6/8/2016 10:56:13 AM	A34784
Surr: BFB	300	0	66.4-120	S	%Rec	1	6/8/2016 10:56:13 AM	A34784
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Acenaphthylene	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Aniline	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Anthracene	ND	2.5	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Azobenzene	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzoic acid	ND	2.6	20		µg/L	1	6/10/2016 8:11:13 PM	25725
Benzyl alcohol	ND	3.0	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Bis(2-ethylhexyl)phthalate	4.1	2.6	10	J	µg/L	1	6/10/2016 8:11:13 PM	25725
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Carbazole	2.8	2.3	10	J	µg/L	1	6/10/2016 8:11:13 PM	25725
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
4-Chloroaniline	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Chlorophenol	ND	2.2	10		µg/L	1	6/10/2016 8:11:13 PM	25725
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Chrysene	ND	2.8	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Di-n-octyl phthalate	4.9	2.0	10	J	µg/L	1	6/10/2016 8:11:13 PM	25725
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Dibenzofuran	ND	2.5	10		µg/L	1	6/10/2016 8:11:13 PM	25725
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-56

Project: Well Installation

Collection Date: 6/1/2016 8:15:00 AM

Lab ID: 1606136-001

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Diethyl phthalate	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/10/2016 8:11:13 PM	25725
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/10/2016 8:11:13 PM	25725
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/10/2016 8:11:13 PM	25725
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/10/2016 8:11:13 PM	25725
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Fluoranthene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Fluorene	ND	2.7	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Hexachloroethane	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Isophorone	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Methylphenol	ND	2.5	10		µg/L	1	6/10/2016 8:11:13 PM	25725
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/10/2016 8:11:13 PM	25725
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Naphthalene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Nitroaniline	ND	2.8	10		µg/L	1	6/10/2016 8:11:13 PM	25725
3-Nitroaniline	ND	2.9	10		µg/L	1	6/10/2016 8:11:13 PM	25725
4-Nitroaniline	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Nitrobenzene	ND	2.8	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2-Nitrophenol	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
4-Nitrophenol	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Pentachlorophenol	ND	2.3	20		µg/L	1	6/10/2016 8:11:13 PM	25725
Phenanthrene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Phenol	ND	2.0	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Pyrene	ND	3.1	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Pyridine	ND	2.2	10		µg/L	1	6/10/2016 8:11:13 PM	25725
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 8:11:13 PM	25725
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/10/2016 8:11:13 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-56

Project: Well Installation

Collection Date: 6/1/2016 8:15:00 AM

Lab ID: 1606136-001

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/10/2016 8:11:13 PM	25725
Surr: 2-Fluorophenol	61.0	0	15-123		%Rec	1	6/10/2016 8:11:13 PM	25725
Surr: Phenol-d5	45.7	0	4.13-124		%Rec	1	6/10/2016 8:11:13 PM	25725
Surr: 2,4,6-Tribromophenol	96.9	0	18.4-134		%Rec	1	6/10/2016 8:11:13 PM	25725
Surr: Nitrobenzene-d5	83.5	0	28.8-134		%Rec	1	6/10/2016 8:11:13 PM	25725
Surr: 2-Fluorobiphenyl	94.9	0	35.9-125		%Rec	1	6/10/2016 8:11:13 PM	25725
Surr: 4-Terphenyl-d14	61.7	0	15-146		%Rec	1	6/10/2016 8:11:13 PM	25725
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	0.50	0.096	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Toluene	0.44	0.12	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Methyl tert-butyl ether (MTBE)	200	0.21	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2,4-Trimethylbenzene	0.49	0.11	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
1,3,5-Trimethylbenzene	0.46	0.12	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2-Dichloroethane (EDC)	15	0.12	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Naphthalene	ND	0.093	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1-Methylnaphthalene	0.52	0.20	4.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
2-Methylnaphthalene	0.61	0.16	4.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Acetone	9.2	4.9	10	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Bromobenzene	ND	0.098	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Bromodichloromethane	0.47	0.14	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Bromoform	ND	0.10	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Bromomethane	ND	0.78	3.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
2-Butanone	ND	0.74	10		µg/L	1	6/9/2016 3:57:00 PM	R34816
Carbon disulfide	ND	0.60	10		µg/L	1	6/9/2016 3:57:00 PM	R34816
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Chloroethane	ND	0.19	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Chloroform	0.56	0.089	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Chloromethane	ND	0.21	3.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Dibromochloromethane	0.31	0.087	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Dibromomethane	ND	0.12	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-56

Project: Well Installation

Collection Date: 6/1/2016 8:15:00 AM

Lab ID: 1606136-001

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1-Dichloroethane	0.76	0.11	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
2-Hexanone	ND	0.84	10		µg/L	1	6/9/2016 3:57:00 PM	R34816
Isopropylbenzene	0.27	0.10	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
4-Isopropyltoluene	0.37	0.14	1.0	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/9/2016 3:57:00 PM	R34816
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Styrene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/9/2016 3:57:00 PM	R34816
Xylenes, Total	1.4	0.37	1.5	J	µg/L	1	6/9/2016 3:57:00 PM	R34816
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	6/9/2016 3:57:00 PM	R34816
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	6/9/2016 3:57:00 PM	R34816
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	6/9/2016 3:57:00 PM	R34816
Surr: Toluene-d8	99.3	0	70-130		%Rec	1	6/9/2016 3:57:00 PM	R34816

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	2.3	0.69	1.0		mg/L	1	6/6/2016 2:53:50 PM	25672
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/6/2016 2:53:50 PM	25672
Surr: DNOP	98.5	0	70-141		%Rec	1	6/6/2016 2:53:50 PM	25672
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	4.8	0.25	0.50		mg/L	10	6/8/2016 11:19:45 AM	A34784
Surr: BFB	106	0	66.4-120		%Rec	10	6/8/2016 11:19:45 AM	A34784
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.39	0.11	0.50	J	mg/L	5	6/3/2016 9:19:13 PM	R34696
Chloride	360	0.55	10		mg/L	20	6/3/2016 9:31:38 PM	R34696
Sulfate	86	0.32	2.5		mg/L	5	6/3/2016 9:19:13 PM	R34696
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.19	0.0013	0.0020		mg/L	1	6/8/2016 3:09:15 PM	E34764
Beryllium	0.00039	0.00031	0.0020	J	mg/L	1	6/8/2016 3:09:15 PM	E34764
Cadmium	ND	0.00075	0.0020		mg/L	1	6/8/2016 3:09:15 PM	E34764
Chromium	ND	0.0018	0.0060		mg/L	1	6/8/2016 3:09:15 PM	E34764
Cobalt	0.10	0.00074	0.0060		mg/L	1	6/8/2016 3:09:15 PM	E34764
Iron	0.23	0.0091	0.020		mg/L	1	6/8/2016 3:09:15 PM	E34764
Manganese	1.5	0.0032	0.020	*	mg/L	10	6/10/2016 3:23:16 PM	A34847
Nickel	0.36	0.0024	0.010	*	mg/L	1	6/8/2016 3:09:15 PM	E34764
Silver	ND	0.0028	0.0050		mg/L	1	6/8/2016 3:09:15 PM	E34764
Vanadium	0.0041	0.0013	0.050	J	mg/L	1	6/8/2016 3:09:15 PM	E34764
Zinc	0.026	0.0028	0.010		mg/L	1	6/8/2016 3:09:15 PM	E34764
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	1.4	0.0066	0.010		mg/L	5	6/10/2016 1:18:51 PM	25731
Beryllium	0.0032	0.00031	0.0020		mg/L	1	6/10/2016 1:05:40 PM	25731
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 1:05:40 PM	25731
Chromium	0.015	0.0022	0.0060		mg/L	1	6/10/2016 1:05:40 PM	25731
Cobalt	0.11	0.00085	0.0060		mg/L	1	6/10/2016 1:05:40 PM	25731
Iron	14	0.18	0.40	*	mg/L	20	6/13/2016 2:16:38 PM	25731
Manganese	2.2	0.0076	0.010	*	mg/L	5	6/10/2016 1:18:51 PM	25731
Nickel	0.36	0.0024	0.010	*	mg/L	1	6/10/2016 1:05:40 PM	25731
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 1:05:40 PM	25731
Vanadium	0.036	0.0015	0.050	J	mg/L	1	6/10/2016 1:05:40 PM	25731
Zinc	0.062	0.0039	0.010		mg/L	1	6/10/2016 1:05:40 PM	25731
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 5:50:18 PM	A34787
Arsenic	0.0066	0.0014	0.010	J	mg/L	10	6/9/2016 9:08:36 PM	B34821

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.0079	0.00017	0.00050		mg/L	1	6/8/2016 5:50:18 PM	A34787
Selenium	0.016	0.0042	0.020	J	mg/L	20	6/9/2016 9:17:49 PM	B34821
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/9/2016 3:35:25 PM	25731
Arsenic	0.0093	0.0015	0.0050		mg/L	5	6/9/2016 5:17:50 PM	25731
Lead	0.032	0.00084	0.0025	*	mg/L	5	6/9/2016 5:17:50 PM	25731
Selenium	0.017	0.0042	0.020	J	mg/L	20	6/9/2016 5:20:51 PM	25731
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/7/2016 11:20:49 AM	25679
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Acenaphthylene	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Aniline	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Anthracene	ND	2.5	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Azobenzene	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzoic acid	ND	2.6	20		µg/L	1	6/10/2016 8:41:29 PM	25725
Benzyl alcohol	5.8	3.0	10	J	µg/L	1	6/10/2016 8:41:29 PM	25725
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Bis(2-ethylhexyl)phthalate	3.4	2.6	10	J	µg/L	1	6/10/2016 8:41:29 PM	25725
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Carbazole	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4-Chloroaniline	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Chlorophenol	ND	2.2	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Chrysene	ND	2.8	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Di-n-octyl phthalate	5.0	2.0	10	J	µg/L	1	6/10/2016 8:41:29 PM	25725
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/10/2016 8:41:29 PM	25725
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Diethyl phthalate	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Fluoranthene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Fluorene	ND	2.7	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Hexachloroethane	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Isophorone	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Methylphenol	ND	2.5	10		µg/L	1	6/10/2016 8:41:29 PM	25725
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/10/2016 8:41:29 PM	25725
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Naphthalene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Nitroaniline	ND	2.8	10		µg/L	1	6/10/2016 8:41:29 PM	25725
3-Nitroaniline	ND	2.9	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4-Nitroaniline	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Nitrobenzene	ND	2.8	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2-Nitrophenol	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
4-Nitrophenol	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Pentachlorophenol	ND	2.3	20		µg/L	1	6/10/2016 8:41:29 PM	25725
Phenanthrene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Phenol	ND	2.0	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Pyrene	ND	3.1	10		µg/L	1	6/10/2016 8:41:29 PM	25725

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/10/2016 8:41:29 PM	25725
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/10/2016 8:41:29 PM	25725
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/10/2016 8:41:29 PM	25725
Surr: 2-Fluorophenol	51.0	0	15-123		%Rec	1	6/10/2016 8:41:29 PM	25725
Surr: Phenol-d5	41.0	0	4.13-124		%Rec	1	6/10/2016 8:41:29 PM	25725
Surr: 2,4,6-Tribromophenol	72.3	0	18.4-134		%Rec	1	6/10/2016 8:41:29 PM	25725
Surr: Nitrobenzene-d5	71.5	0	28.8-134		%Rec	1	6/10/2016 8:41:29 PM	25725
Surr: 2-Fluorobiphenyl	65.7	0	35.9-125		%Rec	1	6/10/2016 8:41:29 PM	25725
Surr: 4-Terphenyl-d14	55.7	0	15-146		%Rec	1	6/10/2016 8:41:29 PM	25725
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	160	1.9	20		µg/L	20	6/10/2016 3:00:00 PM	R34856
Toluene	200	2.4	20		µg/L	20	6/10/2016 3:00:00 PM	R34856
Ethylbenzene	55	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Methyl tert-butyl ether (MTBE)	2000	4.2	20		µg/L	20	6/10/2016 3:00:00 PM	R34856
1,2,4-Trimethylbenzene	36	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,3,5-Trimethylbenzene	11	0.12	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Naphthalene	5.7	0.093	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1-Methylnaphthalene	2.1	0.20	4.0	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
2-Methylnaphthalene	2.9	0.16	4.0	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
Acetone	21	4.9	10		µg/L	1	6/9/2016 4:20:00 PM	R34816
Bromobenzene	ND	0.098	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Bromoform	ND	0.10	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Bromomethane	ND	0.78	3.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
2-Butanone	5.4	0.74	10	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
Carbon disulfide	ND	0.60	10		µg/L	1	6/9/2016 4:20:00 PM	R34816
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Chloroethane	ND	0.19	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Chloroform	ND	0.089	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Chloromethane	ND	0.21	3.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Dibromomethane	ND	0.12	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
2-Hexanone	ND	0.84	10		µg/L	1	6/9/2016 4:20:00 PM	R34816
Isopropylbenzene	1.7	0.10	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
4-Isopropyltoluene	0.47	0.14	1.0	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/9/2016 4:20:00 PM	R34816
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
n-Butylbenzene	1.6	0.16	3.0	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
n-Propylbenzene	7.4	0.13	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
sec-Butylbenzene	1.2	0.12	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Styrene	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
tert-Butylbenzene	0.12	0.12	1.0	J	µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/9/2016 4:20:00 PM	R34816
Xylenes, Total	170	0.37	1.5		µg/L	1	6/9/2016 4:20:00 PM	R34816
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	6/9/2016 4:20:00 PM	R34816
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	6/9/2016 4:20:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-54

Project: Well Installation

Collection Date: 6/1/2016 10:45:00 AM

Lab ID: 1606136-002

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	97.0	0	70-130		%Rec	1	6/9/2016 4:20:00 PM	R34816
Surr: Toluene-d8	98.7	0	70-130		%Rec	1	6/9/2016 4:20:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: Well Installation

Collection Date:

Lab ID: 1606136-003

Matrix: TRIP BLANK

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/8/2016 12:53:45 PM	A34784
Surr: BFB	104	0	66.4-120		%Rec	1	6/8/2016 12:53:45 PM	A34784
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Toluene	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Naphthalene	ND	0.093	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Acetone	20	4.9	10		µg/L	1	6/16/2016 2:00:00 PM	R34977
Bromobenzene	ND	0.098	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Bromoform	ND	0.10	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Bromomethane	ND	0.78	3.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
2-Butanone	3.2	0.74	10	J	µg/L	1	6/16/2016 2:00:00 PM	R34977
Carbon disulfide	ND	0.60	10		µg/L	1	6/16/2016 2:00:00 PM	R34977
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Chlorobenzene	2.7	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Chloroethane	ND	0.19	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Chloroform	ND	0.089	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Chloromethane	ND	0.21	3.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Dibromomethane	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: Well Installation

Collection Date:

Lab ID: 1606136-003

Matrix: TRIP BLANK

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
2-Hexanone	ND	0.84	10		µg/L	1	6/16/2016 2:00:00 PM	R34977
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/16/2016 2:00:00 PM	R34977
Methylene Chloride	0.37	0.19	3.0	J	µg/L	1	6/16/2016 2:00:00 PM	R34977
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Styrene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/16/2016 2:00:00 PM	R34977
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/16/2016 2:00:00 PM	R34977
Surr: 1,2-Dichloroethane-d4	90.2	0	70-130		%Rec	1	6/16/2016 2:00:00 PM	R34977
Surr: 4-Bromofluorobenzene	107	0	70-130		%Rec	1	6/16/2016 2:00:00 PM	R34977
Surr: Dibromofluoromethane	93.6	0	70-130		%Rec	1	6/16/2016 2:00:00 PM	R34977
Surr: Toluene-d8	101	0	70-130		%Rec	1	6/16/2016 2:00:00 PM	R34977

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/6/2016 3:21:56 PM	25672
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/6/2016 3:21:56 PM	25672
Surr: DNOP	99.6	0	70-141		%Rec	1	6/6/2016 3:21:56 PM	25672
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/8/2016 1:17:13 PM	A34784
Surr: BFB	102	0	66.4-120		%Rec	1	6/8/2016 1:17:13 PM	A34784
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.023	0.10		mg/L	1	6/3/2016 10:08:52 PM	R34696
Chloride	ND	0.027	0.50		mg/L	1	6/3/2016 10:08:52 PM	R34696
Sulfate	0.13	0.064	0.50	J	mg/L	1	6/3/2016 10:08:52 PM	R34696
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	ND	0.0013	0.0020		mg/L	1	6/8/2016 3:11:16 PM	E34764
Beryllium	ND	0.00031	0.0020		mg/L	1	6/8/2016 3:11:16 PM	E34764
Cadmium	ND	0.00075	0.0020		mg/L	1	6/8/2016 3:11:16 PM	E34764
Chromium	ND	0.0018	0.0060		mg/L	1	6/8/2016 3:11:16 PM	E34764
Cobalt	ND	0.00074	0.0060		mg/L	1	6/8/2016 3:11:16 PM	E34764
Iron	ND	0.0091	0.020		mg/L	1	6/8/2016 3:11:16 PM	E34764
Manganese	0.0012	0.00032	0.0020	J	mg/L	1	6/8/2016 3:11:16 PM	E34764
Nickel	ND	0.0024	0.010		mg/L	1	6/8/2016 3:11:16 PM	E34764
Silver	ND	0.0028	0.0050		mg/L	1	6/8/2016 3:11:16 PM	E34764
Vanadium	ND	0.0013	0.050		mg/L	1	6/8/2016 3:11:16 PM	E34764
Zinc	0.0057	0.0028	0.010	J	mg/L	1	6/8/2016 3:11:16 PM	E34764
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	0.0017	0.0013	0.0020	J	mg/L	1	6/10/2016 1:24:23 PM	25731
Beryllium	ND	0.00031	0.0020		mg/L	1	6/10/2016 1:24:23 PM	25731
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 1:24:23 PM	25731
Chromium	ND	0.0022	0.0060		mg/L	1	6/10/2016 1:24:23 PM	25731
Cobalt	ND	0.00085	0.0060		mg/L	1	6/10/2016 1:24:23 PM	25731
Iron	ND	0.0091	0.020		mg/L	1	6/10/2016 1:24:23 PM	25731
Manganese	ND	0.0015	0.0020		mg/L	1	6/10/2016 1:24:23 PM	25731
Nickel	ND	0.0024	0.010		mg/L	1	6/10/2016 1:24:23 PM	25731
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 1:24:23 PM	25731
Vanadium	ND	0.0015	0.050		mg/L	1	6/10/2016 1:24:23 PM	25731
Zinc	ND	0.0039	0.010		mg/L	1	6/10/2016 1:24:23 PM	25731
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 6:05:43 PM	A34787
Arsenic	ND	0.00014	0.0010		mg/L	1	6/8/2016 6:05:43 PM	A34787

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	ND	0.00017	0.00050		mg/L	1	6/8/2016 6:05:43 PM	A34787
Selenium	ND	0.00021	0.0010		mg/L	1	6/8/2016 6:05:43 PM	A34787
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/9/2016 3:40:33 PM	25731
Arsenic	ND	0.00029	0.0010		mg/L	1	6/9/2016 3:40:33 PM	25731
Lead	ND	0.00017	0.00050		mg/L	1	6/9/2016 3:40:33 PM	25731
Selenium	ND	0.00021	0.0010		mg/L	1	6/9/2016 3:40:33 PM	25731
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/7/2016 11:22:50 AM	25679
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Acenaphthylene	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Aniline	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Anthracene	ND	2.5	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Azobenzene	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzoic acid	ND	2.6	20		µg/L	1	6/10/2016 9:11:43 PM	25725
Benzyl alcohol	ND	3.0	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Bis(2-ethylhexyl)phthalate	3.8	2.6	10	J	µg/L	1	6/10/2016 9:11:43 PM	25725
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Carbazole	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4-Chloroaniline	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Chlorophenol	ND	2.2	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Chrysene	ND	2.8	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Di-n-octyl phthalate	5.2	2.0	10	J	µg/L	1	6/10/2016 9:11:43 PM	25725
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/10/2016 9:11:43 PM	25725
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Diethyl phthalate	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Fluoranthene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Fluorene	ND	2.7	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Hexachloroethane	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Isophorone	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
1-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Methylnaphthalene	ND	2.9	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Methylphenol	ND	2.5	10		µg/L	1	6/10/2016 9:11:43 PM	25725
3+4-Methylphenol	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/10/2016 9:11:43 PM	25725
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Naphthalene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Nitroaniline	ND	2.8	10		µg/L	1	6/10/2016 9:11:43 PM	25725
3-Nitroaniline	ND	2.9	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4-Nitroaniline	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Nitrobenzene	ND	2.8	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2-Nitrophenol	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
4-Nitrophenol	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Pentachlorophenol	ND	2.3	20		µg/L	1	6/10/2016 9:11:43 PM	25725
Phenanthrene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Phenol	ND	2.0	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Pyrene	ND	3.1	10		µg/L	1	6/10/2016 9:11:43 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/10/2016 9:11:43 PM	25725
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/10/2016 9:11:43 PM	25725
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/10/2016 9:11:43 PM	25725
Surr: 2-Fluorophenol	46.4	0	15-123		%Rec	1	6/10/2016 9:11:43 PM	25725
Surr: Phenol-d5	36.2	0	4.13-124		%Rec	1	6/10/2016 9:11:43 PM	25725
Surr: 2,4,6-Tribromophenol	75.1	0	18.4-134		%Rec	1	6/10/2016 9:11:43 PM	25725
Surr: Nitrobenzene-d5	70.0	0	28.8-134		%Rec	1	6/10/2016 9:11:43 PM	25725
Surr: 2-Fluorobiphenyl	66.6	0	35.9-125		%Rec	1	6/10/2016 9:11:43 PM	25725
Surr: 4-Terphenyl-d14	59.9	0	15-146		%Rec	1	6/10/2016 9:11:43 PM	25725
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Toluene	0.32	0.12	1.0	J	µg/L	1	6/9/2016 5:08:00 PM	R34816
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Naphthalene	ND	0.093	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Acetone	9.2	4.9	10	J	µg/L	1	6/9/2016 5:08:00 PM	R34816
Bromobenzene	ND	0.098	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Bromoform	ND	0.10	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Bromomethane	ND	0.78	3.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
2-Butanone	ND	0.74	10		µg/L	1	6/9/2016 5:08:00 PM	R34816
Carbon disulfide	ND	0.60	10		µg/L	1	6/9/2016 5:08:00 PM	R34816
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Chloroethane	ND	0.19	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Chloroform	ND	0.089	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Chloromethane	ND	0.21	3.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Dibromomethane	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
2-Hexanone	ND	0.84	10		µg/L	1	6/9/2016 5:08:00 PM	R34816
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/9/2016 5:08:00 PM	R34816
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Styrene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/9/2016 5:08:00 PM	R34816
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/9/2016 5:08:00 PM	R34816
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	6/9/2016 5:08:00 PM	R34816
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	6/9/2016 5:08:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: EB060116

Project: Well Installation

Collection Date: 6/1/2016 11:15:00 AM

Lab ID: 1606136-004

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	6/9/2016 5:08:00 PM	R34816
Surr: Toluene-d8	99.3	0	70-130		%Rec	1	6/9/2016 5:08:00 PM	R34816

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	7.2	0.69	1.0		mg/L	1	6/6/2016 3:50:16 PM	25672
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/6/2016 3:50:16 PM	25672
Surr: DNOP	99.3	0	70-141		%Rec	1	6/6/2016 3:50:16 PM	25672
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	210	13	25		mg/L	500	6/8/2016 1:40:43 PM	A34784
Surr: BFB	105	0	66.4-120		%Rec	500	6/8/2016 1:40:43 PM	A34784
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.13	0.11	0.50	J	mg/L	5	6/3/2016 10:33:42 PM	R34696
Chloride	550	1.4	25		mg/L	50	6/13/2016 7:21:03 PM	R34887
Sulfate	16	0.32	2.5		mg/L	5	6/3/2016 10:33:42 PM	R34696
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.90	0.0013	0.0020		mg/L	1	6/8/2016 3:13:26 PM	E34764
Beryllium	0.00040	0.00031	0.0020	J	mg/L	1	6/8/2016 3:13:26 PM	E34764
Cadmium	ND	0.00075	0.0020		mg/L	1	6/8/2016 3:13:26 PM	E34764
Chromium	ND	0.0018	0.0060		mg/L	1	6/8/2016 3:13:26 PM	E34764
Cobalt	0.034	0.00074	0.0060		mg/L	1	6/8/2016 3:13:26 PM	E34764
Iron	3.7	0.091	0.20	*	mg/L	10	6/10/2016 3:32:54 PM	A34847
Manganese	4.8	0.0032	0.020	*	mg/L	10	6/10/2016 3:32:54 PM	A34847
Nickel	0.43	0.0024	0.010	*	mg/L	1	6/8/2016 3:13:26 PM	E34764
Silver	ND	0.0028	0.0050		mg/L	1	6/8/2016 3:13:26 PM	E34764
Vanadium	0.0072	0.0013	0.050	J	mg/L	1	6/8/2016 3:13:26 PM	E34764
Zinc	0.019	0.0028	0.010		mg/L	1	6/8/2016 3:13:26 PM	E34764
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	3.2	0.0066	0.010	*	mg/L	5	6/10/2016 1:45:26 PM	25731
Beryllium	0.0080	0.00031	0.0020	*	mg/L	1	6/10/2016 1:35:52 PM	25731
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 1:35:52 PM	25731
Chromium	0.031	0.0022	0.0060		mg/L	1	6/10/2016 1:35:52 PM	25731
Cobalt	0.046	0.00085	0.0060		mg/L	1	6/10/2016 1:35:52 PM	25731
Iron	39	0.45	1.0	*	mg/L	50	6/13/2016 2:20:25 PM	25731
Manganese	6.3	0.015	0.020	*	mg/L	10	6/13/2016 2:18:38 PM	25731
Nickel	0.46	0.0024	0.010	*	mg/L	1	6/10/2016 1:35:52 PM	25731
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 1:35:52 PM	25731
Vanadium	0.061	0.0015	0.050		mg/L	1	6/10/2016 1:35:52 PM	25731
Zinc	0.10	0.0039	0.010		mg/L	1	6/10/2016 1:35:52 PM	25731
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 6:10:51 PM	A34787
Arsenic	0.0065	0.00014	0.0010		mg/L	1	6/8/2016 6:10:51 PM	A34787

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00073	0.00017	0.00050		mg/L	1	6/8/2016 6:10:51 PM	A34787
Selenium	0.0091	0.00021	0.0010		mg/L	1	6/8/2016 6:10:51 PM	A34787
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.0024	0.0050		mg/L	5	6/13/2016 1:38:51 PM	25731
Arsenic	0.010	0.0015	0.0050	*	mg/L	5	6/9/2016 5:26:54 PM	25731
Lead	0.083	0.00084	0.0025	*	mg/L	5	6/9/2016 5:26:54 PM	25731
Selenium	0.0090	0.0011	0.0050		mg/L	5	6/9/2016 5:26:54 PM	25731
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/7/2016 11:29:06 AM	25679
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Acenaphthylene	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Aniline	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Anthracene	ND	2.5	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Azobenzene	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzoic acid	ND	2.6	20		µg/L	1	6/10/2016 9:41:55 PM	25725
Benzyl alcohol	ND	3.0	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Bis(2-ethylhexyl)phthalate	10	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Carbazole	2.4	2.3	10	J	µg/L	1	6/10/2016 9:41:55 PM	25725
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
4-Chloroaniline	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Chlorophenol	ND	2.2	10		µg/L	1	6/10/2016 9:41:55 PM	25725
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Chrysene	ND	2.8	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Di-n-octyl phthalate	4.9	2.0	10	J	µg/L	1	6/10/2016 9:41:55 PM	25725
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/10/2016 9:41:55 PM	25725
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Diethyl phthalate	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4-Dimethylphenol	6.6	3.0	10	J	µg/L	1	6/10/2016 9:41:55 PM	25725
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Fluoranthene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Fluorene	ND	2.7	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Hexachloroethane	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Isophorone	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
1-Methylnaphthalene	41	2.9	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Methylnaphthalene	69	2.9	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Methylphenol	19	2.5	10		µg/L	1	6/10/2016 9:41:55 PM	25725
3+4-Methylphenol	28	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/10/2016 9:41:55 PM	25725
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Naphthalene	220	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Nitroaniline	ND	2.8	10		µg/L	1	6/10/2016 9:41:55 PM	25725
3-Nitroaniline	ND	2.9	10		µg/L	1	6/10/2016 9:41:55 PM	25725
4-Nitroaniline	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Nitrobenzene	ND	2.8	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2-Nitrophenol	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
4-Nitrophenol	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Pentachlorophenol	ND	2.3	20		µg/L	1	6/10/2016 9:41:55 PM	25725
Phenanthrene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Phenol	27	2.0	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Pyrene	ND	3.1	10		µg/L	1	6/10/2016 9:41:55 PM	25725

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/10/2016 9:41:55 PM	25725
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/10/2016 9:41:55 PM	25725
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/10/2016 9:41:55 PM	25725
Surr: 2-Fluorophenol	10.1	0	15-123	S	%Rec	1	6/10/2016 9:41:55 PM	25725
Surr: Phenol-d5	33.7	0	4.13-124		%Rec	1	6/10/2016 9:41:55 PM	25725
Surr: 2,4,6-Tribromophenol	77.5	0	18.4-134		%Rec	1	6/10/2016 9:41:55 PM	25725
Surr: Nitrobenzene-d5	77.5	0	28.8-134		%Rec	1	6/10/2016 9:41:55 PM	25725
Surr: 2-Fluorobiphenyl	78.9	0	35.9-125		%Rec	1	6/10/2016 9:41:55 PM	25725
Surr: 4-Terphenyl-d14	65.7	0	15-146		%Rec	1	6/10/2016 9:41:55 PM	25725
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	24000	48	500		µg/L	500	6/13/2016 3:41:00 PM	R34880
Toluene	34000	59	500		µg/L	500	6/13/2016 3:41:00 PM	R34880
Ethylbenzene	2800	56	500		µg/L	500	6/13/2016 3:41:00 PM	R34880
Methyl tert-butyl ether (MTBE)	2000	4.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2,4-Trimethylbenzene	1800	55	500		µg/L	500	6/13/2016 3:41:00 PM	R34880
1,3,5-Trimethylbenzene	700	2.3	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2-Dichloroethane (EDC)	ND	2.3	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2-Dibromoethane (EDB)	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Naphthalene	370	1.9	40		µg/L	20	6/10/2016 1:25:00 PM	R34856
1-Methylnaphthalene	78	4.1	80	J	µg/L	20	6/10/2016 1:25:00 PM	R34856
2-Methylnaphthalene	120	3.2	80		µg/L	20	6/10/2016 1:25:00 PM	R34856
Acetone	ND	98	200		µg/L	20	6/10/2016 1:25:00 PM	R34856
Bromobenzene	ND	2.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Bromodichloromethane	ND	2.8	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Bromoform	ND	2.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Bromomethane	ND	16	60		µg/L	20	6/10/2016 1:25:00 PM	R34856
2-Butanone	ND	15	200		µg/L	20	6/10/2016 1:25:00 PM	R34856
Carbon disulfide	ND	12	200		µg/L	20	6/10/2016 1:25:00 PM	R34856
Carbon Tetrachloride	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Chlorobenzene	ND	2.3	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Chloroethane	ND	3.8	40		µg/L	20	6/10/2016 1:25:00 PM	R34856
Chloroform	ND	1.8	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Chloromethane	ND	4.3	60		µg/L	20	6/10/2016 1:25:00 PM	R34856
2-Chlorotoluene	ND	8.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
4-Chlorotoluene	ND	2.6	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
cis-1,2-DCE	ND	2.5	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
cis-1,3-Dichloropropene	ND	2.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2-Dibromo-3-chloropropane	ND	4.7	40		µg/L	20	6/10/2016 1:25:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	1.7	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Dibromomethane	ND	2.4	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2-Dichlorobenzene	ND	8.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,3-Dichlorobenzene	ND	2.9	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,4-Dichlorobenzene	ND	2.9	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Dichlorodifluoromethane	ND	7.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1-Dichloroethane	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1-Dichloroethene	ND	2.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2-Dichloropropane	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,3-Dichloropropane	ND	3.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
2,2-Dichloropropane	ND	3.3	40		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1-Dichloropropene	ND	2.7	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Hexachlorobutadiene	ND	4.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
2-Hexanone	ND	17	200		µg/L	20	6/10/2016 1:25:00 PM	R34856
Isopropylbenzene	68	2.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
4-Isopropyltoluene	11	2.8	20	J	µg/L	20	6/10/2016 1:25:00 PM	R34856
4-Methyl-2-pentanone	ND	8.6	200		µg/L	20	6/10/2016 1:25:00 PM	R34856
Methylene Chloride	ND	3.7	60		µg/L	20	6/10/2016 1:25:00 PM	R34856
n-Butylbenzene	75	3.2	60		µg/L	20	6/10/2016 1:25:00 PM	R34856
n-Propylbenzene	340	2.6	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
sec-Butylbenzene	18	2.5	20	J	µg/L	20	6/10/2016 1:25:00 PM	R34856
Styrene	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
tert-Butylbenzene	ND	2.3	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1,1,2-Tetrachloroethane	ND	2.2	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1,2,2-Tetrachloroethane	ND	2.6	40		µg/L	20	6/10/2016 1:25:00 PM	R34856
Tetrachloroethene (PCE)	ND	3.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
trans-1,2-DCE	ND	8.0	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
trans-1,3-Dichloropropene	ND	2.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2,3-Trichlorobenzene	ND	2.3	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2,4-Trichlorobenzene	ND	2.7	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1,1-Trichloroethane	ND	1.8	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,1,2-Trichloroethane	ND	2.5	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Trichloroethene (TCE)	ND	3.5	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Trichlorofluoromethane	ND	4.1	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
1,2,3-Trichloropropane	ND	4.0	40		µg/L	20	6/10/2016 1:25:00 PM	R34856
Vinyl chloride	ND	3.9	20		µg/L	20	6/10/2016 1:25:00 PM	R34856
Xylenes, Total	16000	180	750		µg/L	500	6/13/2016 3:41:00 PM	R34880
Surr: 1,2-Dichloroethane-d4	96.2	0	70-130		%Rec	20	6/10/2016 1:25:00 PM	R34856
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	20	6/10/2016 1:25:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: OW-55

Project: Well Installation

Collection Date: 6/1/2016 9:30:00 AM

Lab ID: 1606136-005

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	94.1	0	70-130		%Rec	20	6/10/2016 1:25:00 PM	R34856
Surr: Toluene-d8	101	0	70-130		%Rec	20	6/10/2016 1:25:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: Well Installation

Collection Date:

Lab ID: 1606136-006

Matrix: TRIP BLANK

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/8/2016 2:04:13 PM	A34784
Surr: BFB	104	0	66.4-120		%Rec	1	6/8/2016 2:04:13 PM	A34784
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Toluene	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Naphthalene	ND	0.093	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Acetone	17	4.9	10		µg/L	1	6/16/2016 2:23:00 PM	R34977
Bromobenzene	ND	0.098	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Bromoform	ND	0.10	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Bromomethane	ND	0.78	3.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
2-Butanone	3.0	0.74	10	J	µg/L	1	6/16/2016 2:23:00 PM	R34977
Carbon disulfide	ND	0.60	10		µg/L	1	6/16/2016 2:23:00 PM	R34977
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Chlorobenzene	2.7	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Chloroethane	ND	0.19	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Chloroform	ND	0.089	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Chloromethane	ND	0.21	3.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Dibromomethane	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: TRIP BLANK

Project: Well Installation

Collection Date:

Lab ID: 1606136-006

Matrix: TRIP BLANK

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
2-Hexanone	ND	0.84	10		µg/L	1	6/16/2016 2:23:00 PM	R34977
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/16/2016 2:23:00 PM	R34977
Methylene Chloride	0.38	0.19	3.0	J	µg/L	1	6/16/2016 2:23:00 PM	R34977
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Styrene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/16/2016 2:23:00 PM	R34977
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/16/2016 2:23:00 PM	R34977
Surr: 1,2-Dichloroethane-d4	91.3	0	70-130		%Rec	1	6/16/2016 2:23:00 PM	R34977
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	6/16/2016 2:23:00 PM	R34977
Surr: Dibromofluoromethane	93.3	0	70-130		%Rec	1	6/16/2016 2:23:00 PM	R34977
Surr: Toluene-d8	94.3	0	70-130		%Rec	1	6/16/2016 2:23:00 PM	R34977

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	12	0.69	1.0		mg/L	1	6/6/2016 4:18:40 PM	25672
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/6/2016 4:18:40 PM	25672
Surr: DNOP	103	0	70-141		%Rec	1	6/6/2016 4:18:40 PM	25672
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	220	13	25		mg/L	500	6/8/2016 2:27:39 PM	A34784
Surr: BFB	106	0	66.4-120		%Rec	500	6/8/2016 2:27:39 PM	A34784
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.11	0.50		mg/L	5	6/3/2016 10:58:31 PM	R34696
Chloride	550	1.4	25		mg/L	50	6/13/2016 7:33:28 PM	R34887
Sulfate	7.1	0.32	2.5		mg/L	5	6/3/2016 10:58:31 PM	R34696
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.90	0.0013	0.0020		mg/L	1	6/8/2016 3:15:06 PM	E34764
Beryllium	0.00040	0.00031	0.0020	J	mg/L	1	6/8/2016 3:15:06 PM	E34764
Cadmium	ND	0.00075	0.0020		mg/L	1	6/8/2016 3:15:06 PM	E34764
Chromium	ND	0.0018	0.0060		mg/L	1	6/8/2016 3:15:06 PM	E34764
Cobalt	0.034	0.00074	0.0060		mg/L	1	6/8/2016 3:15:06 PM	E34764
Iron	3.7	0.091	0.20	*	mg/L	10	6/10/2016 3:34:50 PM	A34847
Manganese	4.7	0.0032	0.020	*	mg/L	10	6/10/2016 3:34:50 PM	A34847
Nickel	0.44	0.0024	0.010	*	mg/L	1	6/8/2016 3:15:06 PM	E34764
Silver	ND	0.0028	0.0050		mg/L	1	6/8/2016 3:15:06 PM	E34764
Vanadium	0.0074	0.0013	0.050	J	mg/L	1	6/8/2016 3:15:06 PM	E34764
Zinc	0.019	0.0028	0.010		mg/L	1	6/8/2016 3:15:06 PM	E34764
EPA METHOD 200.7: METALS							Analyst: ELS	
Barium	2.1	0.0066	0.010	*	mg/L	5	6/10/2016 1:49:11 PM	25731
Beryllium	0.0060	0.00031	0.0020	*	mg/L	1	6/10/2016 1:47:24 PM	25731
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 1:47:24 PM	25731
Chromium	0.015	0.0022	0.0060		mg/L	1	6/10/2016 1:47:24 PM	25731
Cobalt	0.035	0.00085	0.0060		mg/L	1	6/10/2016 1:47:24 PM	25731
Iron	21	0.45	1.0	*	mg/L	50	6/13/2016 2:24:07 PM	25731
Manganese	5.6	0.015	0.020	*	mg/L	10	6/13/2016 2:22:22 PM	25731
Nickel	0.39	0.0024	0.010	*	mg/L	1	6/10/2016 1:47:24 PM	25731
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 1:47:24 PM	25731
Vanadium	0.047	0.0015	0.050	J	mg/L	1	6/10/2016 1:47:24 PM	25731
Zinc	0.077	0.0039	0.010		mg/L	1	6/10/2016 1:47:24 PM	25731
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Antimony	ND	0.00047	0.0010		mg/L	1	6/8/2016 6:15:59 PM	A34787
Arsenic	0.0062	0.00014	0.0010		mg/L	1	6/8/2016 6:15:59 PM	A34787

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
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	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00062	0.00017	0.00050		mg/L	1	6/8/2016 6:15:59 PM	A34787
Selenium	0.0087	0.00021	0.0010		mg/L	1	6/8/2016 6:15:59 PM	A34787
EPA 200.8: METALS							Analyst: JLF	
Antimony	ND	0.0024	0.0050		mg/L	5	6/13/2016 1:49:08 PM	25731
Arsenic	0.0081	0.00029	0.0010		mg/L	1	6/9/2016 3:55:58 PM	25731
Lead	0.051	0.00084	0.0025	*	mg/L	5	6/9/2016 5:32:56 PM	25731
Selenium	0.0089	0.0011	0.0050		mg/L	5	6/9/2016 5:32:56 PM	25731
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	ND	0.000053	0.00020		mg/L	1	6/7/2016 11:31:09 AM	25679
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Acenaphthylene	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Aniline	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Anthracene	ND	2.5	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Azobenzene	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benz(a)anthracene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzo(a)pyrene	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzoic acid	ND	2.6	20		µg/L	1	6/10/2016 10:11:59 PM	25725
Benzyl alcohol	ND	3.0	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Bis(2-ethylhexyl)phthalate	7.3	2.6	10	J	µg/L	1	6/10/2016 10:11:59 PM	25725
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Carbazole	2.5	2.3	10	J	µg/L	1	6/10/2016 10:11:59 PM	25725
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
4-Chloroaniline	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2-Chloronaphthalene	ND	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2-Chlorophenol	ND	2.2	10		µg/L	1	6/10/2016 10:11:59 PM	25725
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Chrysene	ND	2.8	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Di-n-octyl phthalate	4.9	2.0	10	J	µg/L	1	6/10/2016 10:11:59 PM	25725
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Dibenzofuran	ND	2.5	10		µg/L	1	6/10/2016 10:11:59 PM	25725
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Diethyl phthalate	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Dimethyl phthalate	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4-Dimethylphenol	8.0	3.0	10	J	µg/L	1	6/10/2016 10:11:59 PM	25725
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Fluoranthene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Fluorene	ND	2.7	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Hexachlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Hexachlorobutadiene	ND	2.2	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Hexachloroethane	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Isophorone	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
1-Methylnaphthalene	44	2.9	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2-Methylnaphthalene	72	2.9	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2-Methylphenol	23	2.5	10		µg/L	1	6/10/2016 10:11:59 PM	25725
3+4-Methylphenol	33	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	6/10/2016 10:11:59 PM	25725
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Naphthalene	280	13	50	D	µg/L	5	6/20/2016 5:11:42 PM	25725
2-Nitroaniline	ND	2.8	10		µg/L	1	6/10/2016 10:11:59 PM	25725
3-Nitroaniline	ND	2.9	10		µg/L	1	6/10/2016 10:11:59 PM	25725
4-Nitroaniline	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Nitrobenzene	ND	2.8	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2-Nitrophenol	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
4-Nitrophenol	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Pentachlorophenol	ND	2.3	20		µg/L	1	6/10/2016 10:11:59 PM	25725
Phenanthrene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Phenol	31	2.0	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Pyrene	ND	3.1	10		µg/L	1	6/10/2016 10:11:59 PM	25725

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Pyridine	ND	2.2	10		µg/L	1	6/10/2016 10:11:59 PM	25725
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	6/10/2016 10:11:59 PM	25725
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	6/10/2016 10:11:59 PM	25725
Surr: 2-Fluorophenol	10.4	0	15-123	S	%Rec	1	6/10/2016 10:11:59 PM	25725
Surr: Phenol-d5	34.0	0	4.13-124		%Rec	1	6/10/2016 10:11:59 PM	25725
Surr: 2,4,6-Tribromophenol	71.8	0	18.4-134		%Rec	1	6/10/2016 10:11:59 PM	25725
Surr: Nitrobenzene-d5	78.5	0	28.8-134		%Rec	1	6/10/2016 10:11:59 PM	25725
Surr: 2-Fluorobiphenyl	74.9	0	35.9-125		%Rec	1	6/10/2016 10:11:59 PM	25725
Surr: 4-Terphenyl-d14	62.6	0	15-146		%Rec	1	6/10/2016 10:11:59 PM	25725
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	24000	48	500		µg/L	500	6/13/2016 4:05:00 PM	R34880
Toluene	34000	59	500		µg/L	500	6/13/2016 4:05:00 PM	R34880
Ethylbenzene	2900	56	500		µg/L	500	6/13/2016 4:05:00 PM	R34880
Methyl tert-butyl ether (MTBE)	2000	4.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2,4-Trimethylbenzene	2000	55	500		µg/L	500	6/13/2016 4:05:00 PM	R34880
1,3,5-Trimethylbenzene	760	2.3	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2-Dichloroethane (EDC)	ND	2.3	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2-Dibromoethane (EDB)	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Naphthalene	400	1.9	40		µg/L	20	6/10/2016 2:12:00 PM	R34856
1-Methylnaphthalene	81	4.1	80		µg/L	20	6/10/2016 2:12:00 PM	R34856
2-Methylnaphthalene	130	3.2	80		µg/L	20	6/10/2016 2:12:00 PM	R34856
Acetone	ND	98	200		µg/L	20	6/10/2016 2:12:00 PM	R34856
Bromobenzene	ND	2.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Bromodichloromethane	ND	2.8	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Bromoform	ND	2.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Bromomethane	ND	16	60		µg/L	20	6/10/2016 2:12:00 PM	R34856
2-Butanone	ND	15	200		µg/L	20	6/10/2016 2:12:00 PM	R34856
Carbon disulfide	ND	12	200		µg/L	20	6/10/2016 2:12:00 PM	R34856
Carbon Tetrachloride	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Chlorobenzene	ND	2.3	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Chloroethane	ND	3.8	40		µg/L	20	6/10/2016 2:12:00 PM	R34856
Chloroform	ND	1.8	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Chloromethane	ND	4.3	60		µg/L	20	6/10/2016 2:12:00 PM	R34856
2-Chlorotoluene	ND	8.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
4-Chlorotoluene	ND	2.6	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
cis-1,2-DCE	ND	2.5	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
cis-1,3-Dichloropropene	ND	2.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2-Dibromo-3-chloropropane	ND	4.7	40		µg/L	20	6/10/2016 2:12:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606136

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Dibromochloromethane	ND	1.7	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Dibromomethane	ND	2.4	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2-Dichlorobenzene	ND	8.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,3-Dichlorobenzene	ND	2.9	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,4-Dichlorobenzene	ND	2.9	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Dichlorodifluoromethane	ND	7.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1-Dichloroethane	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1-Dichloroethene	ND	2.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2-Dichloropropane	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,3-Dichloropropane	ND	3.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
2,2-Dichloropropane	ND	3.3	40		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1-Dichloropropene	ND	2.7	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Hexachlorobutadiene	ND	4.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
2-Hexanone	ND	17	200		µg/L	20	6/10/2016 2:12:00 PM	R34856
Isopropylbenzene	73	2.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
4-Isopropyltoluene	12	2.8	20	J	µg/L	20	6/10/2016 2:12:00 PM	R34856
4-Methyl-2-pentanone	ND	8.6	200		µg/L	20	6/10/2016 2:12:00 PM	R34856
Methylene Chloride	ND	3.7	60		µg/L	20	6/10/2016 2:12:00 PM	R34856
n-Butylbenzene	84	3.2	60		µg/L	20	6/10/2016 2:12:00 PM	R34856
n-Propylbenzene	370	2.6	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
sec-Butylbenzene	20	2.5	20	J	µg/L	20	6/10/2016 2:12:00 PM	R34856
Styrene	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
tert-Butylbenzene	ND	2.3	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1,1,2-Tetrachloroethane	ND	2.2	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1,2,2-Tetrachloroethane	ND	2.6	40		µg/L	20	6/10/2016 2:12:00 PM	R34856
Tetrachloroethene (PCE)	ND	3.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
trans-1,2-DCE	ND	8.0	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
trans-1,3-Dichloropropene	ND	2.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2,3-Trichlorobenzene	ND	2.3	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2,4-Trichlorobenzene	ND	2.7	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1,1-Trichloroethane	ND	1.8	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,1,2-Trichloroethane	ND	2.5	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Trichloroethene (TCE)	ND	3.5	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Trichlorofluoromethane	ND	4.1	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
1,2,3-Trichloropropane	ND	4.0	40		µg/L	20	6/10/2016 2:12:00 PM	R34856
Vinyl chloride	ND	3.9	20		µg/L	20	6/10/2016 2:12:00 PM	R34856
Xylenes, Total	16000	180	750		µg/L	500	6/13/2016 4:05:00 PM	R34880
Surr: 1,2-Dichloroethane-d4	97.9	0	70-130		%Rec	20	6/10/2016 2:12:00 PM	R34856
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	20	6/10/2016 2:12:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606136**

Date Reported: 7/12/2016

CLIENT: Western Refining Company

Client Sample ID: DUP01-GW-OW

Project: Well Installation

Collection Date: 6/1/2016

Lab ID: 1606136-007

Matrix: AQUEOUS

Received Date: 6/1/2016 4:15:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: Dibromofluoromethane	93.4	0	70-130		%Rec	20	6/10/2016 2:12:00 PM	R34856
Surr: Toluene-d8	101	0	70-130		%Rec	20	6/10/2016 2:12:00 PM	R34856

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160609005
Project Name: 1606136

Analytical Results Report

Sample Number	160609005-001	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM
Client Sample ID	1606136-002G / OW-54	Sampling Time	10:45 AM			
Matrix	Water	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.00959	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	J

Sample Number	160609005-002	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM
Client Sample ID	1606136-002H / OW-54	Sampling Time	10:45 AM			
Matrix	Water	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.00805	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	J

Sample Number	160609005-003	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM
Client Sample ID	1606136-004G / EB060116	Sampling Time	11:15 AM			
Matrix	Water	Sample Location				
Comments						

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160609005
Project Name: 1606136

Analytical Results Report

Sample Number	160609005-004	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM		
Client Sample ID	1606136-004H / EB060116	Sampling Time	11:15 AM					
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	ND	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	

Sample Number	160609005-005	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM
Client Sample ID	1606136-005G / OW-55	Sampling Time	9:30 AM			
Matrix	Water	Sample Location				
Comments						

Sample Number	160609005-006	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM
Client Sample ID	1606136-005H / OW-55	Sampling Time	9:30 AM			
Matrix	Water	Sample Location				
Comments						

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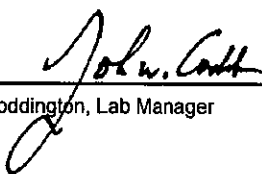
Client: HALL ENVIRONMENTAL ANALYSIS LAB **Batch #:** 160609005
Address: 4901 HAWKINS NE SUITE D **Project Name:** 1606136
Attn: ANDY FREEMAN
ALBUQUERQUE, NM 87109

Analytical Results Report

Sample Number	160609005-007	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM		
Client Sample ID	1606136-007G / DUP01-GW-OW	Sampling Time						
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0159	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	

Sample Number	160609005-008	Sampling Date	6/1/2016	Date/Time Received	6/8/2016	12:05 PM		
Client Sample ID	1606136-007H / DUP01-GW-OW	Sampling Time						
Matrix	Water	Sample Location						
Comments								
Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Dissolved Cyanide	0.0166	mg/L	0.006	0.01	6/15/2016	MER	EPA 335.4	

Authorized Signature


John Coddington, Lab Manager

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:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160609005
Project Name: 1606136

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Dissolved Cyanide	0.480	mg/L	0.5	96.0	90-110	6/15/2016	6/15/2016
Cyanide	0.495	mg/L	0.5	99.0	90-110	6/15/2016	6/15/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160609005-002	Dissolved Cyanide	0.00805	0.499	mg/L	0.5	99.8	90-110	6/15/2016	6/15/2016
160609005-001	Cyanide	0.00959	0.509	mg/L	0.5	101.8	90-110	6/15/2016	6/15/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Dissolved Cyanide	0.493	mg/L	0.5	98.6	1.2	0-20	6/15/2016	6/15/2016
Cyanide	0.501	mg/L	0.5	100.2	1.6	0-20	6/15/2016	6/15/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	6/15/2016	6/15/2016
Dissolved Cyanide	ND	mg/L	0.01	6/15/2016	6/15/2016

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	MB-25731	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	25731	RunNo:	34847					
Prep Date:	6/8/2016	Analysis Date:	6/10/2016	SeqNo:	1075731	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	LCS-25731	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	25731	RunNo:	34847					
Prep Date:	6/8/2016	Analysis Date:	6/10/2016	SeqNo:	1075736	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	99.1	85	115			
Beryllium	0.52	0.0020	0.5000	0	104	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Chromium	0.50	0.0060	0.5000	0	99.1	85	115			
Cobalt	0.49	0.0060	0.5000	0	97.1	85	115			
Iron	0.49	0.020	0.5000	0	97.6	85	115			
Manganese	0.49	0.0020	0.5000	0	98.5	85	115			
Nickel	0.48	0.010	0.5000	0	96.6	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Vanadium	0.52	0.050	0.5000	0	103	85	115			
Zinc	0.49	0.010	0.5000	0	98.4	85	115			

Sample ID	LLCS-25731	SampType:	LCSLL	TestCode:	EPA Method 200.7: Metals					
Client ID:	BatchQC	Batch ID:	25731	RunNo:	34847					
Prep Date:	6/8/2016	Analysis Date:	6/10/2016	SeqNo:	1075737	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	0.0021	0.0020	0.002000	0	107	50	150			
Cadmium	0.0020	0.0020	0.002000	0	100	50	150			
Chromium	0.0060	0.0060	0.006000	0	101	50	150			
Cobalt	0.0064	0.0060	0.006000	0	107	50	150			
Iron	0.021	0.020	0.02000	0	104	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	LLLCS-25731		SampType:	LCSLL		TestCode:	EPA Method 200.7: Metals			
Client ID:	BatchQC		Batch ID:	25731		RunNo:	34847			
Prep Date:	6/8/2016		Analysis Date:	6/10/2016		SeqNo:	1075737		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0021	0.0020	0.002000	0	106	50	150			
Nickel	0.0046	0.010	0.005000	0	92.8	50	150			J
Silver	0.0051	0.0050	0.005000	0	103	50	150			
Vanadium	0.011	0.050	0.01000	0	111	50	150			J
Zinc	0.0060	0.010	0.005000	0	120	50	150			J

Sample ID	1606136-002FMS		SampType:	MS		TestCode:	EPA Method 200.7: Metals			
Client ID:	OW-54		Batch ID:	25731		RunNo:	34847			
Prep Date:	6/8/2016		Analysis Date:	6/10/2016		SeqNo:	1075785		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.49	0.0020	0.5000	0.003230	96.4	70	130			
Cadmium	0.49	0.0020	0.5000	0	98.7	70	130			
Chromium	0.48	0.0060	0.5000	0.01488	93.8	70	130			
Cobalt	0.55	0.0060	0.5000	0.1082	89.4	70	130			
Nickel	0.81	0.010	0.5000	0.3591	89.8	70	130			
Silver	0.10	0.0050	0.1000	0	101	70	130			
Vanadium	0.52	0.050	0.5000	0.03565	97.5	70	130			
Zinc	0.53	0.010	0.5000	0.06245	92.9	70	130			

Sample ID	1606136-002FMSD		SampType:	MSD		TestCode:	EPA Method 200.7: Metals			
Client ID:	OW-54		Batch ID:	25731		RunNo:	34847			
Prep Date:	6/8/2016		Analysis Date:	6/10/2016		SeqNo:	1075786		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Beryllium	0.47	0.0020	0.5000	0.003230	93.8	70	130	2.73	20	
Cadmium	0.47	0.0020	0.5000	0	94.5	70	130	4.32	20	
Chromium	0.46	0.0060	0.5000	0.01488	88.7	70	130	5.42	20	
Cobalt	0.53	0.0060	0.5000	0.1082	84.8	70	130	4.20	20	
Nickel	0.78	0.010	0.5000	0.3591	83.5	70	130	4.01	20	
Silver	0.097	0.0050	0.1000	0	97.0	70	130	4.12	20	
Vanadium	0.50	0.050	0.5000	0.03565	92.4	70	130	5.04	20	
Zinc	0.50	0.010	0.5000	0.06245	88.2	70	130	4.60	20	

Sample ID	1606136-002FMS		SampType:	MS		TestCode:	EPA Method 200.7: Metals			
Client ID:	OW-54		Batch ID:	25731		RunNo:	34847			
Prep Date:	6/8/2016		Analysis Date:	6/10/2016		SeqNo:	1075791		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	1.9	0.010	0.5000	1.386	102	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-002FMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	OW-54		Batch ID: 25731		RunNo: 34847					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1075791		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	2.7	0.010	0.5000	2.234	91.0	70	130			

Sample ID	1606136-002FMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	OW-54		Batch ID: 25731		RunNo: 34847					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1075792		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	1.8	0.010	0.5000	1.386	83.0	70	130	5.19	20	
Manganese	2.6	0.010	0.5000	2.234	77.0	70	130	2.64	20	

Sample ID	1606136-004FMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	EB060116		Batch ID: 25731		RunNo: 34847					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1075794		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0.001740	101	70	130			
Beryllium	0.53	0.0020	0.5000	0	105	70	130			
Cadmium	0.52	0.0020	0.5000	0	104	70	130			
Chromium	0.50	0.0060	0.5000	0	101	70	130			
Cobalt	0.49	0.0060	0.5000	0	98.6	70	130			
Iron	0.50	0.020	0.5000	0	101	70	130			
Manganese	0.50	0.0020	0.5000	0	100	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	0.53	0.050	0.5000	0	105	70	130			
Zinc	0.50	0.010	0.5000	0	101	70	130			

Sample ID	1606136-004FMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	EB060116		Batch ID: 25731		RunNo: 34847					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1075795		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0.001740	99.9	70	130	1.02	20	
Beryllium	0.52	0.0020	0.5000	0	103	70	130	2.13	20	
Cadmium	0.51	0.0020	0.5000	0	103	70	130	1.42	20	
Chromium	0.50	0.0060	0.5000	0	99.4	70	130	1.56	20	
Cobalt	0.49	0.0060	0.5000	0	97.2	70	130	1.45	20	
Iron	0.49	0.020	0.5000	0	98.9	70	130	1.95	20	
Manganese	0.50	0.0020	0.5000	0	99.1	70	130	1.12	20	
Nickel	0.49	0.010	0.5000	0	97.7	70	130	1.33	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-004FMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	EB060116		Batch ID: 25731		RunNo: 34847					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1075795		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.10	0.0050	0.1000	0	103	70	130	1.08	20	
Vanadium	0.52	0.050	0.5000	0	104	70	130	1.08	20	
Zinc	0.50	0.010	0.5000	0	100	70	130	0.635	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	MB-E	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	E34764	RunNo:	34764					
Prep Date:		Analysis Date:	6/8/2016	SeqNo:	1073288	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	LCS-E	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	E34764	RunNo:	34764					
Prep Date:		Analysis Date:	6/8/2016	SeqNo:	1073289	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	97.1	85	115			
Beryllium	0.50	0.0020	0.5000	0	101	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.8	85	115			
Chromium	0.48	0.0060	0.5000	0	96.6	85	115			
Cobalt	0.47	0.0060	0.5000	0	94.2	85	115			
Iron	0.48	0.020	0.5000	0	95.3	85	115			
Manganese	0.48	0.0020	0.5000	0	95.7	85	115			
Nickel	0.47	0.010	0.5000	0	93.8	85	115			
Silver	0.10	0.0050	0.1000	0	99.6	85	115			
Vanadium	0.51	0.050	0.5000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.6	85	115			

Sample ID	LLCS-E	SampType:	LCSLL	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	E34764	RunNo:	34764					
Prep Date:		Analysis Date:	6/8/2016	SeqNo:	1073290	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	0.0021	0.0020	0.002000	0	106	50	150			
Cadmium	0.0018	0.0020	0.002000	0	92.5	50	150			J
Chromium	0.0059	0.0060	0.006000	0	99.0	50	150			J
Cobalt	0.0061	0.0060	0.006000	0	102	50	150			
Iron	0.020	0.020	0.02000	0	102	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	LLLCS-E		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: E34764		RunNo: 34764					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073290		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0022	0.0020	0.002000	0	112	50	150			
Nickel	0.0049	0.010	0.005000	0	98.8	50	150			J
Silver	0.0050	0.0050	0.005000	0	99.8	50	150			J
Vanadium	0.010	0.050	0.01000	0	103	50	150			J
Zinc	0.0066	0.010	0.005000	0	132	50	150			J

Sample ID	MB-A		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: A34847		RunNo: 34847					
Prep Date:			Analysis Date: 6/10/2016		SeqNo: 1075722		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								

Sample ID	LCS-A		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: A34847			RunNo: 34847				
Prep Date:			Analysis Date: 6/10/2016			SeqNo: 1075723		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Manganese	0.49	0.0020	0.5000	0	98.5	85	115			

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34847		RunNo: 34847					
Prep Date:			Analysis Date: 6/10/2016		SeqNo: 1075724		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.020	0.020	0.02000	0	98.4	50	150			J
Manganese	0.0020	0.0020	0.002000	0	102	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	MB-25731		SampType:	MBLK		TestCode:	EPA 200.8: Metals			
Client ID:	PBW		Batch ID:	25731		RunNo:	34803			
Prep Date:	6/8/2016		Analysis Date:	6/9/2016		SeqNo:	1074033	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	MSLCS-25731		SampType:	LCS		TestCode:	EPA 200.8: Metals			
Client ID:	LCSW		Batch ID:	25731		RunNo:	34803			
Prep Date:	6/8/2016		Analysis Date:	6/9/2016		SeqNo:	1074035	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	103	85	115			
Selenium	0.024	0.0010	0.02500	0	97.4	85	115			

Sample ID	MSLLCS-25731		SampType:	LCSLL		TestCode:	EPA 200.8: Metals			
Client ID:	BatchQC		Batch ID:	25731		RunNo:	34803			
Prep Date:	6/8/2016		Analysis Date:	6/9/2016		SeqNo:	1074037	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00093	0.0010	0.001000	0	92.5	50	150			J
Arsenic	0.00093	0.0010	0.001000	0	93.1	50	150			J
Lead	0.00051	0.00050	0.0005000	0	103	50	150			
Selenium	0.00097	0.0010	0.001000	0	96.9	50	150			J

Sample ID	1606136-005FMSLL		SampType:	MSLL		TestCode:	EPA 200.8: Metals			
Client ID:	OW-55		Batch ID:	25731		RunNo:	34803			
Prep Date:	6/8/2016		Analysis Date:	6/9/2016		SeqNo:	1074469	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.028	0.0050	0.02500	0.01016	71.6	70	130			
Lead	0.095	0.0025	0.01250	0.08302	96.8	70	130			
Selenium	0.024	0.0050	0.02500	0.008957	60.8	70	130			S

Sample ID	1606136-007FMSDL		SampType:	MSDLL		TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW		Batch ID:	25731		RunNo:	34803			
Prep Date:	6/8/2016		Analysis Date:	6/9/2016		SeqNo:	1074473	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.074	0.0025	0.01250	0.05120	182	70	130	4.85	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-007FMSDL				SampType:	MSDLL				TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW				Batch ID:	25731				RunNo:	34803			
Prep Date:	6/8/2016				Analysis Date:	6/9/2016				SeqNo:	1074473			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Selenium	0.028	0.0050	0.02500	0.008944	75.3	70	130	1.30	20					

Sample ID	1606136-007FMSDL				SampType:	MSDLL				TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW				Batch ID:	25731				RunNo:	34803			
Prep Date:	6/8/2016				Analysis Date:	6/9/2016				SeqNo:	1074474			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Arsenic	0.026	0.0010	0.02500	0.008140	72.4	70	130	0.978	20					

Sample ID	1606136-007FMSLL				SampType:	MSLL				TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW				Batch ID:	25731				RunNo:	34803			
Prep Date:	6/8/2016				Analysis Date:	6/9/2016				SeqNo:	1074475			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Lead	0.070	0.0025	0.01250	0.05120	154	70	130			S				
Selenium	0.028	0.0050	0.02500	0.008944	76.8	70	130							

Sample ID	1606136-007FMSLL				SampType:	MSLL				TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW				Batch ID:	25731				RunNo:	34803			
Prep Date:	6/8/2016				Analysis Date:	6/9/2016				SeqNo:	1074476			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Arsenic	0.026	0.0010	0.02500	0.008140	71.4	70	130							

Sample ID	1606136-005FMSLL				SampType:	MSLL				TestCode:	EPA 200.8: Metals			
Client ID:	OW-55				Batch ID:	25731				RunNo:	34863			
Prep Date:	6/8/2016				Analysis Date:	6/13/2016				SeqNo:	1077323			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	ND	0.0050	0.02500	0	0	70	130			S				

Sample ID	1606136-007FMSDL				SampType:	MSDLL				TestCode:	EPA 200.8: Metals			
Client ID:	DUP01-GW-OW				Batch ID:	25731				RunNo:	34863			
Prep Date:	6/8/2016				Analysis Date:	6/13/2016				SeqNo:	1077327			
										Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual				
Antimony	ND	0.0050	0.02500	0	0	70	130	200	20	RS				

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-007FMSLL	SampType:	MSLL	TestCode:	EPA 200.8: Metals					
Client ID:	DUP01-GW-OW	Batch ID:	25731	RunNo:	34863					
Prep Date:	6/8/2016	Analysis Date:	6/13/2016	SeqNo:	1077328	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.0025	0.0050	0.02500	0	9.98	70	130			JS

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-002EMSDL			SampType:	MSD		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	OW-54		Batch ID:	A34787		RunNo:	34787				
Prep Date:			Analysis Date:	6/8/2016		SeqNo:	1073570		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Antimony	0.023	0.0010	0.02500	0	91.0	70	130	0.291	20		
Lead	0.021	0.00050	0.01250	0.007895	103	70	130	0.297	20		

Sample ID	1606136-002EMSL			SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals			
Client ID:	OW-54		Batch ID:	A34787		RunNo:	34787				
Prep Date:			Analysis Date:	6/8/2016		SeqNo:	1073571		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Antimony	0.023	0.0010	0.02500	0	91.2	70	130				
Lead	0.021	0.00050	0.01250	0.007895	103	70	130				

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34787		RunNo: 34787					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073576		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	96.7	85	115			
Arsenic	0.024	0.0010	0.02500	0	97.6	85	115			
Lead	0.012	0.00050	0.01250	0	97.9	85	115			
Selenium	0.024	0.0010	0.02500	0	97.8	85	115			

Sample ID	LLLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34787		RunNo: 34787					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073577		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.00096	0.0010	0.001000	0	95.6	50	150			J
Arsenic	0.0010	0.0010	0.001000	0	103	50	150			
Lead	0.00053	0.00050	0.0005000	0	105	50	150			
Selenium	0.0011	0.0010	0.001000	0	105	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: A34787			RunNo: 34787					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073578		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B34821		RunNo: 34821					
Prep Date:			Analysis Date: 6/9/2016		SeqNo: 1074620		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	96.8	85	115			
Selenium	0.024	0.0010	0.02500	0	97.6	85	115			

Sample ID	LLLCS		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B34821		RunNo: 34821					
Prep Date:			Analysis Date: 6/9/2016		SeqNo: 1074621		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	99.9	50	150			J
Selenium	0.00098	0.0010	0.001000	0	97.7	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B34821			RunNo: 34821					
Prep Date:		Analysis Date: 6/9/2016			SeqNo: 1074622		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	MB-25679	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25679	RunNo:	34745					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1071852	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-25679	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25679	RunNo:	34745					
Prep Date:	6/6/2016	Analysis Date:	6/7/2016	SeqNo:	1071853	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	107	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34696	RunNo:	34696					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1070149	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:	R34696	RunNo:	34696					
Prep Date:		Analysis Date:	6/3/2016	SeqNo:	1070150	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	4.7	0.50	5.000	0	94.4	90	110			
Sulfate	9.5	0.50	10.00	0	95.4	90	110			

Sample ID	MB	SampType:	mblk	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R34887	RunNo:	34887					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1077616	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:	R34887	RunNo:	34887					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1077617	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	101	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	1606136-001BMS		SampType: MS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	OW-56		Batch ID: 25672		RunNo: 34716					
Prep Date:	6/6/2016		Analysis Date: 6/6/2016		SeqNo: 1071057		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.6	1.0	5.000	1.382	105	59.4	160			
Surr: DNOP	0.51		0.5000		102	70	141			

Sample ID	1606136-001BMSD		SampType: MSD		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	OW-56		Batch ID: 25672		RunNo: 34716					
Prep Date:	6/6/2016		Analysis Date: 6/6/2016		SeqNo: 1071058		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	6.6	1.0	5.000	1.382	105	59.4	160	0.226	20	
Surr: DNOP	0.52		0.5000		103	70	141	0	0	

Sample ID	LCS-25672		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 25672		RunNo: 34716					
Prep Date:	6/6/2016		Analysis Date: 6/6/2016		SeqNo: 1071063		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.4	1.0	5.000	0	108	71.3	139			
Surr: DNOP	0.51		0.5000		103	70	141			

Sample ID	MB-25672		SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW		Batch ID: 25672		RunNo: 34716					
Prep Date:	6/6/2016		Analysis Date: 6/6/2016		SeqNo: 1071064		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.98		1.000		97.9	70	141			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW		Batch ID: A34784		RunNo: 34784					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073391		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	21		20.00		103	66.4	120			

Sample ID	2.5UG GRO LCS	SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID: A34784			RunNo: 34784					
Prep Date:		Analysis Date: 6/8/2016			SeqNo: 1073392		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	92.9	80	120			
Surr: BFB	23		20.00		113	66.4	120			

Sample ID	1606136-002AMS		SampType: MS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW-54		Batch ID: A34784		RunNo: 34784					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073397		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	9.7	0.50	5.000	4.788	98.2	70	130			
Surr: BFB	230		200.0		116	66.4	120			

Sample ID	1606136-002AMSD		SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	OW-54		Batch ID: A34784		RunNo: 34784					
Prep Date:			Analysis Date: 6/8/2016		SeqNo: 1073398		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	9.5	0.50	5.000	4.788	95.0	70	130	1.68	20	
Surr: BFB	230		200.0		114	66.4	120	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R34816		RunNo: 34816					
Prep Date:			Analysis Date: 6/9/2016		SeqNo: 1074420		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	20	1.0	20.00	0	102	70	130			
Chlorobenzene	20	1.0	20.00	0	102	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	99.5	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.1	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34816			RunNo: 34816					
Prep Date:		Analysis Date: 6/9/2016			SeqNo: 1074421		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	0.40	4.0								J
2-Methylnaphthalene	0.44	4.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34816			RunNo: 34816					
Prep Date:		Analysis Date: 6/9/2016			SeqNo: 1074421	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	0.25	3.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R34816			RunNo: 34816						
Prep Date:	Analysis Date: 6/9/2016			SeqNo: 1074421		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		99.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	10		10.00		99.9	70	130			
Surr: Toluene-d8	9.8		10.00		98.0	70	130			

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R34856			RunNo: 34856						
Prep Date:	Analysis Date: 6/10/2016			SeqNo: 1076370		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.5	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Chlorobenzene	19	1.0	20.00	0	96.3	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	89.4	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	92.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.0	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R34856			RunNo: 34856						
Prep Date:	Analysis Date: 6/10/2016			SeqNo: 1076371		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								
Methyl tert-butyl ether (MTBE)	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.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34856			RunNo: 34856					
Prep Date:		Analysis Date: 6/10/2016			SeqNo: 1076371	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R34856	RunNo:	34856					
Prep Date:		Analysis Date:	6/10/2016	SeqNo:	1076371	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								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.5	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID:	R34880	RunNo:	34880					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1077366	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.0	70	130			
Toluene	20	1.0	20.00	0	98.1	70	130			
Surr: 1,2-Dichloroethane-d4	8.6		10.00		85.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.2	70	130			
Surr: Toluene-d8	9.9		10.00		99.4	70	130			

Sample ID	vsb deli	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R34880	RunNo:	34880					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1077367	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								
1,2,4-Trimethylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.8		10.00		88.1	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	vsb deli		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW		Batch ID: R34880		RunNo: 34880					
Prep Date:			Analysis Date: 6/13/2016		SeqNo: 1077367		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: R34977		RunNo: 34977					
Prep Date:			Analysis Date: 6/16/2016		SeqNo: 1080697		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.9	70	130			
Toluene	19	1.0	20.00	0	96.7	70	130			
Chlorobenzene	19	1.0	20.00	0	96.9	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	91.6	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	92.9	70	130			
Surr: 1,2-Dichloroethane-d4	8.8		10.00		88.3	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.6	70	130			
Surr: Toluene-d8	10		10.00		99.7	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34977			RunNo: 34977					
Prep Date:		Analysis Date: 6/16/2016			SeqNo: 1080698		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	0.28	2.0								J
1-Methylnaphthalene	0.36	4.0								J
2-Methylnaphthalene	0.41	4.0								J
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R34977	RunNo:	34977					
Prep Date:		Analysis Date:	6/16/2016	SeqNo:	1080698	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	1.2	10								J
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R34977			RunNo: 34977					
Prep Date:		Analysis Date: 6/16/2016			SeqNo: 1080698		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2,4-Trichlorobenzene	0.17	1.0								J
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		92.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.1	70	130			
Surr: Toluene-d8	9.9		10.00		98.9	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	mb-25725	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25725	RunNo:	34835					
Prep Date:	6/8/2016	Analysis Date:	6/10/2016	SeqNo:	1076233	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	5.5	20								J
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	3.3	10								J
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	5.0	10								J
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	2.8	10								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	mb-25725	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	25725	RunNo:	34835					
Prep Date:	6/8/2016	Analysis Date:	6/10/2016	SeqNo:	1076233	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	94		200.0		47.2	15	123			
Surr: Phenol-d5	77		200.0		38.7	4.13	124			
Surr: 2,4,6-Tribromophenol	160		200.0		77.8	18.4	134			
Surr: Nitrobenzene-d5	63		100.0		63.0	28.8	134			
Surr: 2-Fluorobiphenyl	59		100.0		59.2	35.9	125			
Surr: 4-Terphenyl-d14	58		100.0		58.2	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	Ics-25725		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25725		RunNo: 34835					
Prep Date:	6/8/2016		Analysis Date: 6/10/2016		SeqNo: 1076234		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	94	10	100.0	0	93.9	35	113			
4-Chloro-3-methylphenol	190	10	200.0	0	96.6	40.7	114			
2-Chlorophenol	200	10	200.0	0	102	37.6	113			
1,4-Dichlorobenzene	56	10	100.0	0	56.4	37.7	106			
2,4-Dinitrotoluene	89	10	100.0	0	89.3	37	91			
N-Nitrosodi-n-propylamine	92	10	100.0	0	92.0	45.4	105			
4-Nitrophenol	120	10	200.0	0	59.1	33.4	104			
Pentachlorophenol	180	20	200.0	0	91.4	29.5	94.9			
Phenol	130	10	200.0	0	63.8	30.6	119			
Pyrene	110	10	100.0	0	106	26.2	120			
1,2,4-Trichlorobenzene	71	10	100.0	0	71.0	39.9	125			
Surr: 2-Fluorophenol	110		200.0		56.2	15	123			
Surr: Phenol-d5	93		200.0		46.7	4.13	124			
Surr: 2,4,6-Tribromophenol	170		200.0		87.4	18.4	134			
Surr: Nitrobenzene-d5	79		100.0		78.5	28.8	134			
Surr: 2-Fluorobiphenyl	77		100.0		77.1	35.9	125			
Surr: 4-Terphenyl-d14	61		100.0		60.6	15	146			

Sample ID	mb-25862		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 25862		RunNo: 35016					
Prep Date:	6/15/2016		Analysis Date: 6/20/2016		SeqNo: 1082703		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		55.3	15	123			
Surr: Phenol-d5	100		200.0		50.6	4.13	124			
Surr: 2,4,6-Tribromophenol	140		200.0		71.0	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		74.1	28.8	134			
Surr: 2-Fluorobiphenyl	70		100.0		69.7	35.9	125			
Surr: 4-Terphenyl-d14	84		100.0		83.7	15	146			

Sample ID	Ics-25862		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25862		RunNo: 35016					
Prep Date:	6/15/2016		Analysis Date: 6/20/2016		SeqNo: 1082704		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	100		200.0		51.8	15	123			
Surr: Phenol-d5	100		200.0		49.8	4.13	124			
Surr: 2,4,6-Tribromophenol	130		200.0		63.6	18.4	134			
Surr: Nitrobenzene-d5	68		100.0		67.6	28.8	134			
Surr: 2-Fluorobiphenyl	64		100.0		63.6	35.9	125			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606136

12-Jul-16

Client: Western Refining Company

Project: Well Installation

Sample ID	lcs-25862		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 25862		RunNo: 35016					
Prep Date:	6/15/2016		Analysis Date: 6/20/2016		SeqNo: 1082704		Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	77		100.0		76.7	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: Western Refining Gallup

Work Order Number: 1606136

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

6/1/2016 4:15:00 PM

Completed By: Ashley Gallegos

6/3/2016 9:23:34 AM

Reviewed By:

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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: [Signature]

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.
GALLUP REFINERY
 Mailing Address: 92 GIANT CROSSING RD
GALLUP NM 87301
 Phone #: 505-722-0217
 email or Fax#: ED.RIEGE@WNR.COM

QA/QC Package: ☒ Level 4 (Full Validation)
☐ Standard
 Accreditation
☐ NELAP ☐ Other

☒ EDD (Type) EXCEL
 On Ice: ☒ Yes ☐ No
 Sample Temperature: 70-10

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
6/1/16	—	WATER	DUP01-GW-OW	40 ML VOA-6	HCL	-007
				1 LITER AMBER-2	NEAT	
				250 ML AMBER-1	NEAT	
				500 ML PLASTIC-1	HNO3	
				125 ML PLASTIC-1	HNO3	
				500 ML PLASTIC-2	NAOH	
				500 ML PLASTIC-1	NEAT	

Relinquished by: [Signature] Date: 6/1/16 1300
 Relinquished by: [Signature] Date: 6/1/16 1405

Turn-Around Time:
☒ Standard ☐ Rush
 Project Name: WELL INSTALLATIONS
 Project #:

Project Manager: ED RIEGE
 Sampler: TRACY PAYNE
 On Ice: ☒ Yes ☐ No
 Sample Temperature: 70-10

Container Type and #
 Preservative Type
 HEAL No.

Container Type and #	Preservative Type	HEAL No.
40 ML VOA-6	HCL	-007
1 LITER AMBER-2	NEAT	
250 ML AMBER-1	NEAT	
500 ML PLASTIC-1	HNO3	
125 ML PLASTIC-1	HNO3	
500 ML PLASTIC-2	NAOH	
500 ML PLASTIC-1	NEAT	

Received by: [Signature] Date: 6/1/16 200
 Received by: [Signature] Date: 6/1/16 1405



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 + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	PCRA 8 Metals (TOTAL/DISSOLV)	Anions (F, Cl, NO3, NO2, PO4, SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Metals (TOTAL/DISSOLV)	(SEE ATTACHED LIST)	GEN CHEM	(SEE ATTACHED LIST)	Air Bubbles (Y or N)
		✓							✓		✓	✓	✓	✓	

Remarks:

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.

WESTERN REFINING SOUTHWEST, INC.
GALLUP REFINERY - NORTH DRAINAGE DITCH
METALS AND CYANIDE ANALYSES FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES
TOTAL METALS ANALYSIS AND DISSOLVED METALS ANALYSIS

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
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

GENERAL CHEMISTRY PARAMETERS FOR GROUNDWATER SAMPLES
AND WATER QA/QC SAMPLES

Analyte	Analytical Method
Chloride	EPA method 300.0
Fluoride	EPA method 300.0
Sulfate	EPA method 300.0



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

July 05, 2016

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: 2016 2nd Quarter-OW Wells

OrderNo.: 1606426

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 6/8/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Field Blank

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 7:30:00 AM

Lab ID: 1606426-001

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Toluene	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Naphthalene	ND	0.093	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Acetone	ND	4.9	10		µg/L	1	6/15/2016 12:20:00 AM	A34909
Bromobenzene	ND	0.098	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Bromoform	ND	0.10	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Bromomethane	ND	0.78	3.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
2-Butanone	ND	0.74	10		µg/L	1	6/15/2016 12:20:00 AM	A34909
Carbon disulfide	ND	0.60	10		µg/L	1	6/15/2016 12:20:00 AM	A34909
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Chloroethane	ND	0.19	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Chloroform	ND	0.089	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Chloromethane	ND	0.21	3.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Dibromomethane	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Field Blank

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 7:30:00 AM

Lab ID: 1606426-001

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
2-Hexanone	ND	0.84	10		µg/L	1	6/15/2016 12:20:00 AM	A34909
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/15/2016 12:20:00 AM	A34909
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Styrene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/15/2016 12:20:00 AM	A34909
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/15/2016 12:20:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	92.5	0	70-130		%Rec	1	6/15/2016 12:20:00 AM	A34909
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	6/15/2016 12:20:00 AM	A34909
Surr: Dibromofluoromethane	96.2	0	70-130		%Rec	1	6/15/2016 12:20:00 AM	A34909
Surr: Toluene-d8	99.0	0	70-130		%Rec	1	6/15/2016 12:20:00 AM	A34909

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-14

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 8:45:00 AM

Lab ID: 1606426-002

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	4.5	0.69	1.0		mg/L	1	6/9/2016 2:08:21 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 2:08:21 PM	25749
Surr: DNOP	99.8	0	70-141		%Rec	1	6/9/2016 2:08:21 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	27	0.51	1.0		mg/L	20	6/13/2016 4:58:22 PM	A34874
Surr: BFB	114	0	66.4-120		%Rec	20	6/13/2016 4:58:22 PM	A34874
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	2.2	0.0066	0.010	*	mg/L	5	6/10/2016 4:13:55 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:12:17 PM	A34847
Calcium	93	0.26	1.0		mg/L	1	6/10/2016 4:12:17 PM	A34847
Chromium	ND	0.0018	0.0060		mg/L	1	6/10/2016 4:12:17 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:12:17 PM	A34847
Iron	4.9	0.091	0.20	*	mg/L	10	6/13/2016 4:03:46 PM	A34876
Magnesium	26	0.013	1.0		mg/L	1	6/10/2016 4:12:17 PM	A34847
Manganese	2.3	0.0016	0.010	*	mg/L	5	6/10/2016 4:13:55 PM	A34847
Potassium	0.30	0.18	1.0	J	mg/L	1	6/10/2016 4:12:17 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:12:17 PM	A34847
Sodium	390	0.48	5.0		mg/L	5	6/10/2016 4:13:55 PM	A34847
Zinc	ND	0.0028	0.010		mg/L	1	6/10/2016 4:12:17 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	2.2	0.011	0.020	*	mg/L	10	6/20/2016 3:46:38 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:10:01 PM	25859
Chromium	ND	0.0022	0.0060		mg/L	1	6/17/2016 6:10:01 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:10:01 PM	25859
Iron	5.1	0.072	0.20	*	mg/L	10	6/20/2016 3:46:38 PM	25859
Manganese	2.4	0.015	0.020	*	mg/L	10	6/20/2016 3:46:38 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:10:01 PM	25859
Zinc	ND	0.0039	0.010		mg/L	1	6/17/2016 6:10:01 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.012	0.0014	0.010	*	mg/L	10	6/16/2016 2:00:18 PM	A34971
Lead	ND	0.00017	0.00050		mg/L	1	6/14/2016 6:44:54 PM	C34915
Selenium	0.022	0.011	0.050	J	mg/L	50	6/16/2016 2:03:22 PM	A34971
Uranium	0.0068	0.000051	0.00050		mg/L	1	6/14/2016 6:44:54 PM	C34915
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.016	0.0058	0.020	J*	mg/L	20	6/17/2016 6:11:45 PM	25859
Lead	0.00020	0.000047	0.00050	J	mg/L	1	6/16/2016 8:38:51 PM	25859
Selenium	0.017	0.0025	0.020	J	mg/L	20	6/17/2016 6:11:45 PM	25859

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

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	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-14

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 8:45:00 AM

Lab ID: 1606426-002

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Uranium	0.0074	0.0000049	0.00050		mg/L	1	6/16/2016 8:38:51 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000068	0.000053	0.00020	J	mg/L	1	6/13/2016 3:50:49 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	7800	9.6	100		µg/L	100	6/15/2016 12:43:00 AM	A34909
Toluene	2.6	1.2	10	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
Ethylbenzene	230	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Methyl tert-butyl ether (MTBE)	620	2.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2,4-Trimethylbenzene	8.0	1.1	10	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
1,3,5-Trimethylbenzene	1.7	1.2	10	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	1.2	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Naphthalene	19	0.93	20	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
1-Methylnaphthalene	33	2.0	40	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
2-Methylnaphthalene	3.3	1.6	40	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
Acetone	ND	49	100		µg/L	10	6/15/2016 1:06:00 AM	A34909
Bromobenzene	ND	0.98	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Bromodichloromethane	ND	1.4	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Bromoform	ND	1.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Bromomethane	ND	7.8	30		µg/L	10	6/15/2016 1:06:00 AM	A34909
2-Butanone	ND	7.4	100		µg/L	10	6/15/2016 1:06:00 AM	A34909
Carbon disulfide	ND	6.0	100		µg/L	10	6/15/2016 1:06:00 AM	A34909
Carbon Tetrachloride	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Chlorobenzene	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Chloroethane	ND	1.9	20		µg/L	10	6/15/2016 1:06:00 AM	A34909
Chloroform	ND	0.89	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Chloromethane	ND	2.1	30		µg/L	10	6/15/2016 1:06:00 AM	A34909
2-Chlorotoluene	ND	4.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
4-Chlorotoluene	ND	1.3	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
cis-1,2-DCE	ND	1.2	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
cis-1,3-Dichloropropene	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	2.3	20		µg/L	10	6/15/2016 1:06:00 AM	A34909
Dibromochloromethane	ND	0.87	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Dibromomethane	ND	1.2	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2-Dichlorobenzene	ND	4.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,3-Dichlorobenzene	ND	1.4	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,4-Dichlorobenzene	ND	1.4	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Dichlorodifluoromethane	ND	3.6	10		µg/L	10	6/15/2016 1:06:00 AM	A34909

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

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	D Sample Diluted Due to Matrix	E Value above quantitation range
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	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
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Project: 2016 2nd Quarter-OW Wells

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Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloroethane	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1-Dichloroethene	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2-Dichloropropane	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,3-Dichloropropane	ND	1.6	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
2,2-Dichloropropane	ND	1.7	20		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1-Dichloropropene	ND	1.3	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Hexachlorobutadiene	ND	2.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
2-Hexanone	ND	8.4	100		µg/L	10	6/15/2016 1:06:00 AM	A34909
Isopropylbenzene	9.6	1.0	10	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
4-Isopropyltoluene	ND	1.4	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
4-Methyl-2-pentanone	ND	4.3	100		µg/L	10	6/15/2016 1:06:00 AM	A34909
Methylene Chloride	ND	1.9	30		µg/L	10	6/15/2016 1:06:00 AM	A34909
n-Butylbenzene	ND	1.6	30		µg/L	10	6/15/2016 1:06:00 AM	A34909
n-Propylbenzene	11	1.3	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
sec-Butylbenzene	3.1	1.2	10	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
Styrene	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
tert-Butylbenzene	ND	1.2	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	1.3	20		µg/L	10	6/15/2016 1:06:00 AM	A34909
Tetrachloroethene (PCE)	ND	1.5	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
trans-1,2-DCE	ND	4.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
trans-1,3-Dichloropropene	ND	1.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2,3-Trichlorobenzene	ND	1.1	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2,4-Trichlorobenzene	ND	1.3	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1,1-Trichloroethane	ND	0.91	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,1,2-Trichloroethane	ND	1.3	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Trichloroethene (TCE)	ND	1.8	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Trichlorofluoromethane	ND	2.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
1,2,3-Trichloropropane	ND	2.0	20		µg/L	10	6/15/2016 1:06:00 AM	A34909
Vinyl chloride	ND	2.0	10		µg/L	10	6/15/2016 1:06:00 AM	A34909
Xylenes, Total	12	3.7	15	J	µg/L	10	6/15/2016 1:06:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	95.1	0	70-130		%Rec	10	6/15/2016 1:06:00 AM	A34909
Surr: 4-Bromofluorobenzene	102	0	70-130		%Rec	10	6/15/2016 1:06:00 AM	A34909
Surr: Dibromofluoromethane	94.6	0	70-130		%Rec	10	6/15/2016 1:06:00 AM	A34909
Surr: Toluene-d8	97.3	0	70-130		%Rec	10	6/15/2016 1:06:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 10:30:00 AM

Lab ID: 1606426-003

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/9/2016 2:36:25 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 2:36:25 PM	25749
Surr: DNOP	102	0	70-141		%Rec	1	6/9/2016 2:36:25 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	4.0	0.25	0.50		mg/L	10	6/13/2016 5:21:44 PM	A34874
Surr: BFB	109	0	66.4-120		%Rec	10	6/13/2016 5:21:44 PM	A34874
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.070	0.0013	0.0020		mg/L	1	6/10/2016 4:15:59 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:15:59 PM	A34847
Calcium	60	0.26	1.0		mg/L	1	6/10/2016 4:15:59 PM	A34847
Chromium	ND	0.0018	0.0060		mg/L	1	6/10/2016 4:15:59 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:15:59 PM	A34847
Iron	0.31	0.0091	0.020	*	mg/L	1	6/10/2016 4:15:59 PM	A34847
Magnesium	14	0.013	1.0		mg/L	1	6/10/2016 4:15:59 PM	A34847
Manganese	0.33	0.00032	0.0020	*	mg/L	1	6/10/2016 4:15:59 PM	A34847
Potassium	0.55	0.18	1.0	J	mg/L	1	6/10/2016 4:15:59 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:15:59 PM	A34847
Sodium	390	0.48	5.0		mg/L	5	6/10/2016 4:17:55 PM	A34847
Zinc	ND	0.0028	0.010		mg/L	1	6/10/2016 4:15:59 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.072	0.0011	0.0020		mg/L	1	6/20/2016 3:48:32 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:13:38 PM	25859
Chromium	ND	0.0022	0.0060		mg/L	1	6/17/2016 6:13:38 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:13:38 PM	25859
Iron	0.36	0.0072	0.020	*	mg/L	1	6/20/2016 3:48:32 PM	25859
Manganese	0.33	0.0015	0.0020	*	mg/L	1	6/20/2016 3:48:32 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:13:38 PM	25859
Zinc	ND	0.0039	0.010		mg/L	1	6/17/2016 6:13:38 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0032	0.00069	0.0050	J	mg/L	5	6/16/2016 2:06:25 PM	A34971
Lead	ND	0.00017	0.00050		mg/L	1	6/14/2016 7:00:22 PM	C34915
Selenium	0.0080	0.0021	0.010	J	mg/L	10	6/16/2016 2:09:29 PM	A34971
Uranium	0.054	0.00026	0.0025	*	mg/L	5	6/16/2016 2:06:25 PM	A34971
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0039	0.0015	0.0050	J	mg/L	5	6/17/2016 6:16:54 PM	25859
Lead	ND	0.000047	0.00050		mg/L	1	6/16/2016 8:41:51 PM	25859
Selenium	0.0068	0.00062	0.0050		mg/L	5	6/17/2016 6:16:54 PM	25859

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 10:30:00 AM

Lab ID: 1606426-003

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Uranium	0.053	0.000025	0.0025	*	mg/L	5	6/17/2016 6:16:54 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000061	0.000053	0.00020	J	mg/L	1	6/13/2016 3:52:56 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.48	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Toluene	ND	0.59	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Ethylbenzene	ND	0.56	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Methyl tert-butyl ether (MTBE)	3100	11	50		µg/L	50	6/15/2016 2:39:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.55	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.58	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	0.58	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.56	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Naphthalene	ND	0.46	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
1-Methylnaphthalene	ND	1.0	20		µg/L	5	6/15/2016 3:02:00 AM	A34909
2-Methylnaphthalene	ND	0.79	20		µg/L	5	6/15/2016 3:02:00 AM	A34909
Acetone	ND	25	50		µg/L	5	6/15/2016 3:02:00 AM	A34909
Bromobenzene	ND	0.49	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Bromodichloromethane	ND	0.70	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Bromoform	ND	0.51	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Bromomethane	ND	3.9	15		µg/L	5	6/15/2016 3:02:00 AM	A34909
2-Butanone	ND	3.7	50		µg/L	5	6/15/2016 3:02:00 AM	A34909
Carbon disulfide	ND	3.0	50		µg/L	5	6/15/2016 3:02:00 AM	A34909
Carbon Tetrachloride	ND	0.54	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Chlorobenzene	ND	0.57	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Chloroethane	ND	0.96	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
Chloroform	ND	0.44	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Chloromethane	ND	1.1	15		µg/L	5	6/15/2016 3:02:00 AM	A34909
2-Chlorotoluene	ND	2.0	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
4-Chlorotoluene	ND	0.64	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
cis-1,2-DCE	ND	0.62	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.53	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	1.2	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
Dibromochloromethane	ND	0.43	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Dibromomethane	ND	0.60	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2-Dichlorobenzene	ND	2.0	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,3-Dichlorobenzene	ND	0.72	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,4-Dichlorobenzene	ND	0.71	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Dichlorodifluoromethane	ND	1.8	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 10:30:00 AM

Lab ID: 1606426-003

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloroethane	ND	0.54	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1-Dichloroethene	ND	0.54	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2-Dichloropropane	ND	0.55	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,3-Dichloropropane	ND	0.78	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
2,2-Dichloropropane	ND	0.83	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1-Dichloropropene	ND	0.67	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Hexachlorobutadiene	ND	0.99	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
2-Hexanone	ND	4.2	50		µg/L	5	6/15/2016 3:02:00 AM	A34909
Isopropylbenzene	ND	0.52	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
4-Isopropyltoluene	ND	0.70	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
4-Methyl-2-pentanone	ND	2.1	50		µg/L	5	6/15/2016 3:02:00 AM	A34909
Methylene Chloride	ND	0.94	15		µg/L	5	6/15/2016 3:02:00 AM	A34909
n-Butylbenzene	ND	0.80	15		µg/L	5	6/15/2016 3:02:00 AM	A34909
n-Propylbenzene	ND	0.66	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
sec-Butylbenzene	ND	0.62	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Styrene	ND	0.55	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
tert-Butylbenzene	ND	0.58	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.56	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.64	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.76	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
trans-1,2-DCE	ND	2.0	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.52	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.56	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.66	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1,1-Trichloroethane	ND	0.46	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,1,2-Trichloroethane	ND	0.64	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Trichloroethene (TCE)	ND	0.88	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Trichlorofluoromethane	ND	1.0	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
1,2,3-Trichloropropane	ND	1.0	10		µg/L	5	6/15/2016 3:02:00 AM	A34909
Vinyl chloride	ND	0.98	5.0		µg/L	5	6/15/2016 3:02:00 AM	A34909
Xylenes, Total	ND	1.8	7.5		µg/L	5	6/15/2016 3:02:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	91.3	0	70-130		%Rec	5	6/15/2016 3:02:00 AM	A34909
Surr: 4-Bromofluorobenzene	99.4	0	70-130		%Rec	5	6/15/2016 3:02:00 AM	A34909
Surr: Dibromofluoromethane	94.7	0	70-130		%Rec	5	6/15/2016 3:02:00 AM	A34909
Surr: Toluene-d8	98.9	0	70-130		%Rec	5	6/15/2016 3:02:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 11:10:00 AM

Lab ID: 1606426-004

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/9/2016 3:04:33 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 3:04:33 PM	25749
Surr: DNOP	104	0	70-141		%Rec	1	6/9/2016 3:04:33 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	4.0	0.25	0.50		mg/L	10	6/13/2016 5:45:06 PM	A34874
Surr: BFB	109	0	66.4-120		%Rec	10	6/13/2016 5:45:06 PM	A34874
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.10	0.0013	0.0020		mg/L	1	6/10/2016 4:27:31 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:27:31 PM	A34847
Calcium	74	0.26	1.0		mg/L	1	6/10/2016 4:27:31 PM	A34847
Chromium	ND	0.0018	0.0060		mg/L	1	6/10/2016 4:27:31 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:27:31 PM	A34847
Iron	0.062	0.0091	0.020		mg/L	1	6/10/2016 4:27:31 PM	A34847
Magnesium	17	0.013	1.0		mg/L	1	6/10/2016 4:27:31 PM	A34847
Manganese	0.043	0.00032	0.0020		mg/L	1	6/10/2016 4:27:31 PM	A34847
Potassium	0.46	0.18	1.0	J	mg/L	1	6/10/2016 4:27:31 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:27:31 PM	A34847
Sodium	370	0.48	5.0		mg/L	5	6/10/2016 4:29:25 PM	A34847
Zinc	ND	0.0028	0.010		mg/L	1	6/10/2016 4:27:31 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.11	0.0011	0.0020		mg/L	1	6/20/2016 3:55:54 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:17:29 PM	25859
Chromium	ND	0.0022	0.0060		mg/L	1	6/17/2016 6:17:29 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:17:29 PM	25859
Iron	0.11	0.0072	0.020		mg/L	1	6/20/2016 3:55:54 PM	25859
Manganese	0.045	0.0015	0.0020		mg/L	1	6/20/2016 3:55:54 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:17:29 PM	25859
Zinc	ND	0.0039	0.010		mg/L	1	6/17/2016 6:17:29 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0036	0.00069	0.0050	J	mg/L	5	6/16/2016 2:12:32 PM	A34971
Lead	0.00020	0.00017	0.00050	J	mg/L	1	6/14/2016 7:05:30 PM	C34915
Selenium	0.0095	0.0042	0.020	J	mg/L	20	6/16/2016 2:15:36 PM	A34971
Uranium	0.047	0.00026	0.0025	*	mg/L	5	6/16/2016 2:12:32 PM	A34971
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0042	0.0015	0.0050	J	mg/L	5	6/17/2016 6:27:11 PM	25859
Lead	0.00030	0.000047	0.00050	J	mg/L	1	6/16/2016 8:44:52 PM	25859
Selenium	0.0090	0.00062	0.0050		mg/L	5	6/17/2016 6:27:11 PM	25859

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 11:10:00 AM

Lab ID: 1606426-004

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Uranium	0.046	0.000025	0.0025	*	mg/L	5	6/17/2016 6:27:11 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000062	0.000053	0.00020	J	mg/L	1	6/13/2016 3:55:03 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	1.2	0.48	5.0	J	µg/L	5	6/15/2016 3:48:00 AM	A34909
Toluene	ND	0.59	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Ethylbenzene	ND	0.56	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Methyl tert-butyl ether (MTBE)	3100	11	50		µg/L	50	6/15/2016 3:25:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.55	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.58	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	0.58	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.56	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Naphthalene	ND	0.46	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
1-Methylnaphthalene	ND	1.0	20		µg/L	5	6/15/2016 3:48:00 AM	A34909
2-Methylnaphthalene	ND	0.79	20		µg/L	5	6/15/2016 3:48:00 AM	A34909
Acetone	ND	25	50		µg/L	5	6/15/2016 3:48:00 AM	A34909
Bromobenzene	ND	0.49	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Bromodichloromethane	ND	0.70	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Bromoform	ND	0.51	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Bromomethane	ND	3.9	15		µg/L	5	6/15/2016 3:48:00 AM	A34909
2-Butanone	ND	3.7	50		µg/L	5	6/15/2016 3:48:00 AM	A34909
Carbon disulfide	ND	3.0	50		µg/L	5	6/15/2016 3:48:00 AM	A34909
Carbon Tetrachloride	ND	0.54	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Chlorobenzene	ND	0.57	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Chloroethane	ND	0.96	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
Chloroform	ND	0.44	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Chloromethane	ND	1.1	15		µg/L	5	6/15/2016 3:48:00 AM	A34909
2-Chlorotoluene	ND	2.0	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
4-Chlorotoluene	ND	0.64	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
cis-1,2-DCE	ND	0.62	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.53	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	1.2	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
Dibromochloromethane	ND	0.43	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Dibromomethane	ND	0.60	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2-Dichlorobenzene	ND	2.0	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,3-Dichlorobenzene	ND	0.72	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,4-Dichlorobenzene	ND	0.71	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Dichlorodifluoromethane	ND	1.8	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 11:10:00 AM

Lab ID: 1606426-004

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloroethane	ND	0.54	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1-Dichloroethene	ND	0.54	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2-Dichloropropane	ND	0.55	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,3-Dichloropropane	ND	0.78	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
2,2-Dichloropropane	ND	0.83	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1-Dichloropropene	ND	0.67	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Hexachlorobutadiene	ND	0.99	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
2-Hexanone	ND	4.2	50		µg/L	5	6/15/2016 3:48:00 AM	A34909
Isopropylbenzene	ND	0.52	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
4-Isopropyltoluene	ND	0.70	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
4-Methyl-2-pentanone	ND	2.1	50		µg/L	5	6/15/2016 3:48:00 AM	A34909
Methylene Chloride	ND	0.94	15		µg/L	5	6/15/2016 3:48:00 AM	A34909
n-Butylbenzene	ND	0.80	15		µg/L	5	6/15/2016 3:48:00 AM	A34909
n-Propylbenzene	ND	0.66	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
sec-Butylbenzene	0.64	0.62	5.0	J	µg/L	5	6/15/2016 3:48:00 AM	A34909
Styrene	ND	0.55	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
tert-Butylbenzene	ND	0.58	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.56	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.64	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.76	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
trans-1,2-DCE	ND	2.0	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.52	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.56	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.66	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1,1-Trichloroethane	ND	0.46	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,1,2-Trichloroethane	ND	0.64	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Trichloroethene (TCE)	ND	0.88	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Trichlorofluoromethane	ND	1.0	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
1,2,3-Trichloropropane	ND	1.0	10		µg/L	5	6/15/2016 3:48:00 AM	A34909
Vinyl chloride	ND	0.98	5.0		µg/L	5	6/15/2016 3:48:00 AM	A34909
Xylenes, Total	ND	1.8	7.5		µg/L	5	6/15/2016 3:48:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	91.0	0	70-130		%Rec	5	6/15/2016 3:48:00 AM	A34909
Surr: 4-Bromofluorobenzene	97.0	0	70-130		%Rec	5	6/15/2016 3:48:00 AM	A34909
Surr: Dibromofluoromethane	93.6	0	70-130		%Rec	5	6/15/2016 3:48:00 AM	A34909
Surr: Toluene-d8	99.1	0	70-130		%Rec	5	6/15/2016 3:48:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:45:00 PM

Lab ID: 1606426-005

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/9/2016 4:01:00 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 4:01:00 PM	25749
Surr: DNOP	103	0	70-141		%Rec	1	6/9/2016 4:01:00 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	0.052	0.025	0.050		mg/L	1	6/13/2016 6:08:36 PM	A34874
Surr: BFB	108	0	66.4-120		%Rec	1	6/13/2016 6:08:36 PM	A34874
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.020	0.0013	0.0020		mg/L	1	6/10/2016 4:31:20 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:31:20 PM	A34847
Calcium	9.4	0.26	1.0		mg/L	1	6/10/2016 4:31:20 PM	A34847
Chromium	ND	0.0018	0.0060		mg/L	1	6/10/2016 4:31:20 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:31:20 PM	A34847
Iron	ND	0.0091	0.020		mg/L	1	6/10/2016 4:31:20 PM	A34847
Magnesium	1.4	0.013	1.0		mg/L	1	6/10/2016 4:31:20 PM	A34847
Manganese	0.020	0.00032	0.0020		mg/L	1	6/10/2016 4:31:20 PM	A34847
Potassium	1.3	0.18	1.0		mg/L	1	6/10/2016 4:31:20 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:31:20 PM	A34847
Sodium	310	0.48	5.0		mg/L	5	6/10/2016 4:33:23 PM	A34847
Zinc	0.014	0.0028	0.010		mg/L	1	6/10/2016 4:31:20 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.021	0.0011	0.0020		mg/L	1	6/20/2016 3:57:48 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:31:14 PM	25859
Chromium	ND	0.0022	0.0060		mg/L	1	6/17/2016 6:31:14 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:31:14 PM	25859
Iron	ND	0.0072	0.020		mg/L	1	6/17/2016 6:31:14 PM	25859
Manganese	0.020	0.0015	0.0020		mg/L	1	6/20/2016 3:57:48 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:31:14 PM	25859
Zinc	ND	0.0039	0.010		mg/L	1	6/17/2016 6:31:14 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0019	0.00069	0.0050	J	mg/L	5	6/16/2016 2:24:49 PM	A34971
Lead	ND	0.00017	0.00050		mg/L	1	6/14/2016 7:10:39 PM	C34915
Selenium	0.0035	0.0011	0.0050	J	mg/L	5	6/16/2016 2:24:49 PM	A34971
Uranium	0.018	0.000051	0.00050		mg/L	1	6/14/2016 7:10:39 PM	C34915
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0019	0.0015	0.0050	J	mg/L	5	6/17/2016 6:47:49 PM	25859
Lead	ND	0.000047	0.00050		mg/L	1	6/16/2016 8:47:52 PM	25859
Selenium	0.0025	0.00062	0.0050	J	mg/L	5	6/17/2016 6:47:49 PM	25859

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:45:00 PM

Lab ID: 1606426-005

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Uranium	0.019	0.0000049	0.00050		mg/L	1	6/16/2016 8:47:52 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000060	0.000053	0.00020	J	mg/L	1	6/13/2016 3:57:02 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Toluene	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Methyl tert-butyl ether (MTBE)	36	0.21	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2-Dichloroethane (EDC)	0.75	0.12	1.0	J	µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Naphthalene	ND	0.093	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Acetone	ND	4.9	10		µg/L	1	6/15/2016 4:12:00 AM	A34909
Bromobenzene	ND	0.098	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Bromoform	ND	0.10	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Bromomethane	ND	0.78	3.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
2-Butanone	ND	0.74	10		µg/L	1	6/15/2016 4:12:00 AM	A34909
Carbon disulfide	ND	0.60	10		µg/L	1	6/15/2016 4:12:00 AM	A34909
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Chloroethane	ND	0.19	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Chloroform	ND	0.089	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Chloromethane	ND	0.21	3.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Dibromomethane	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:45:00 PM

Lab ID: 1606426-005

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
2-Hexanone	ND	0.84	10		µg/L	1	6/15/2016 4:12:00 AM	A34909
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/15/2016 4:12:00 AM	A34909
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Styrene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/15/2016 4:12:00 AM	A34909
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/15/2016 4:12:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	91.2	0	70-130		%Rec	1	6/15/2016 4:12:00 AM	A34909
Surr: 4-Bromofluorobenzene	97.8	0	70-130		%Rec	1	6/15/2016 4:12:00 AM	A34909
Surr: Dibromofluoromethane	94.6	0	70-130		%Rec	1	6/15/2016 4:12:00 AM	A34909
Surr: Toluene-d8	96.8	0	70-130		%Rec	1	6/15/2016 4:12:00 AM	A34909

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-01

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:35:00 PM

Lab ID: 1606426-006

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/9/2016 4:29:21 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 4:29:21 PM	25749
Surr: DNOP	104	0	70-141		%Rec	1	6/9/2016 4:29:21 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	6/13/2016 6:32:00 PM	A34874
Surr: BFB	111	0	66.4-120		%Rec	1	6/13/2016 6:32:00 PM	A34874
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.24	0.023	0.10		mg/L	1	6/9/2016 10:09:24 PM	R34830
Chloride	74	0.55	10		mg/L	20	6/9/2016 10:21:49 PM	R34830
Bromide	0.25	0.032	0.10		mg/L	1	6/20/2016 11:18:57 PM	A35046
Phosphorus, Orthophosphate (As P)	ND	0.22	0.50	H	mg/L	1	6/9/2016 10:09:24 PM	R34830
Sulfate	170	1.3	10		mg/L	20	6/9/2016 10:21:49 PM	R34830
Nitrate+Nitrite as N	0.49	0.42	1.0	J	mg/L	5	6/10/2016 2:17:39 AM	R34830
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.072	0.0013	0.0020		mg/L	1	6/10/2016 4:35:17 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:35:17 PM	A34847
Calcium	6.7	0.26	1.0		mg/L	1	6/10/2016 4:35:17 PM	A34847
Chromium	0.0019	0.0018	0.0060	J	mg/L	1	6/10/2016 4:35:17 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:35:17 PM	A34847
Iron	0.82	0.0091	0.020	*	mg/L	1	6/10/2016 4:35:17 PM	A34847
Magnesium	0.60	0.013	1.0	J	mg/L	1	6/10/2016 4:35:17 PM	A34847
Manganese	0.092	0.00032	0.0020	*	mg/L	1	6/10/2016 4:35:17 PM	A34847
Potassium	0.88	0.18	1.0	J	mg/L	1	6/10/2016 4:35:17 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:35:17 PM	A34847
Sodium	330	0.48	5.0		mg/L	5	6/10/2016 4:37:16 PM	A34847
Zinc	0.022	0.0028	0.010		mg/L	1	6/10/2016 4:35:17 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.13	0.0011	0.0020		mg/L	1	6/20/2016 3:59:49 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:35:13 PM	25859
Chromium	0.014	0.0022	0.0060		mg/L	1	6/20/2016 3:59:49 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:35:13 PM	25859
Iron	4.8	0.072	0.20	*	mg/L	10	6/20/2016 4:01:38 PM	25859
Manganese	0.22	0.0015	0.0020	*	mg/L	1	6/20/2016 3:59:49 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:35:13 PM	25859
Zinc	0.042	0.0039	0.010		mg/L	1	6/20/2016 3:59:49 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0024	0.00069	0.0050	J	mg/L	5	6/16/2016 2:27:53 PM	A34971

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-01

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:35:00 PM

Lab ID: 1606426-006

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.0048	0.00017	0.00050		mg/L	1	6/14/2016 7:15:47 PM	C34915
Selenium	0.0046	0.00021	0.0010		mg/L	1	6/14/2016 7:15:47 PM	C34915
Uranium	0.041	0.00026	0.0025	*	mg/L	5	6/16/2016 2:27:53 PM	A34971
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0022	0.00029	0.0010		mg/L	1	6/16/2016 8:50:53 PM	25859
Lead	0.011	0.000047	0.00050		mg/L	1	6/16/2016 8:50:53 PM	25859
Selenium	0.0047	0.00062	0.0050	J	mg/L	5	6/17/2016 6:52:57 PM	25859
Uranium	0.041	0.000025	0.0025	*	mg/L	5	6/17/2016 6:52:57 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000083	0.000053	0.00020	J	mg/L	1	6/13/2016 3:59:03 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	0.13	0.096	1.0	J	µg/L	1	6/15/2016 4:35:00 AM	A34909
Toluene	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Methyl tert-butyl ether (MTBE)	1.0	0.21	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Naphthalene	ND	0.093	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Acetone	ND	4.9	10		µg/L	1	6/15/2016 4:35:00 AM	A34909
Bromobenzene	ND	0.098	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Bromoform	ND	0.10	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Bromomethane	ND	0.78	3.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
2-Butanone	ND	0.74	10		µg/L	1	6/15/2016 4:35:00 AM	A34909
Carbon disulfide	ND	0.60	10		µg/L	1	6/15/2016 4:35:00 AM	A34909
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Chloroethane	ND	0.19	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Chloroform	ND	0.089	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Chloromethane	ND	0.21	3.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-01

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:35:00 PM

Lab ID: 1606426-006

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Dibromomethane	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
2-Hexanone	ND	0.84	10		µg/L	1	6/15/2016 4:35:00 AM	A34909
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/15/2016 4:35:00 AM	A34909
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Styrene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/15/2016 4:35:00 AM	A34909
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/15/2016 4:35:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	92.3	0	70-130		%Rec	1	6/15/2016 4:35:00 AM	A34909

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-01

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 1:35:00 PM

Lab ID: 1606426-006

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	6/15/2016 4:35:00 AM	A34909
Surr: Dibromofluoromethane	92.0	0	70-130		%Rec	1	6/15/2016 4:35:00 AM	A34909
Surr: Toluene-d8	98.5	0	70-130		%Rec	1	6/15/2016 4:35:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-10

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 2:10:00 PM

Lab ID: 1606426-007

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	6/9/2016 4:57:56 PM	25749
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	6/9/2016 4:57:56 PM	25749
Surr: DNOP	101	0	70-141		%Rec	1	6/9/2016 4:57:56 PM	25749
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB	
Gasoline Range Organics (GRO)	0.047	0.025	0.050	J	mg/L	1	6/13/2016 8:29:20 PM	A34874
Surr: BFB	115	0	66.4-120		%Rec	1	6/13/2016 8:29:20 PM	A34874
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.22	0.023	0.10		mg/L	1	6/9/2016 10:34:14 PM	R34830
Chloride	960	2.7	50		mg/L	100	6/20/2016 11:43:46 PM	A35046
Bromide	0.94	0.032	0.10		mg/L	1	6/20/2016 11:31:21 PM	A35046
Phosphorus, Orthophosphate (As P)	ND	0.22	0.50	H	mg/L	1	6/9/2016 10:34:14 PM	R34830
Sulfate	200	1.3	10		mg/L	20	6/9/2016 10:46:39 PM	R34830
Nitrate+Nitrite as N	0.49	0.42	1.0	J	mg/L	5	6/10/2016 2:30:04 AM	R34830
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.065	0.0013	0.0020		mg/L	1	6/10/2016 4:39:02 PM	A34847
Cadmium	ND	0.00075	0.0020		mg/L	1	6/10/2016 4:39:02 PM	A34847
Calcium	120	1.3	5.0		mg/L	5	6/10/2016 4:41:00 PM	A34847
Chromium	ND	0.0018	0.0060		mg/L	1	6/10/2016 4:39:02 PM	A34847
Copper	ND	0.0040	0.0060		mg/L	1	6/10/2016 4:39:02 PM	A34847
Iron	ND	0.0091	0.020		mg/L	1	6/10/2016 4:39:02 PM	A34847
Magnesium	22	0.013	1.0		mg/L	1	6/10/2016 4:39:02 PM	A34847
Manganese	0.11	0.00032	0.0020	*	mg/L	1	6/10/2016 4:39:02 PM	A34847
Potassium	2.0	0.18	1.0		mg/L	1	6/10/2016 4:39:02 PM	A34847
Silver	ND	0.0028	0.0050		mg/L	1	6/10/2016 4:39:02 PM	A34847
Sodium	720	0.96	10		mg/L	10	6/13/2016 4:05:46 PM	A34876
Zinc	0.13	0.0028	0.010		mg/L	1	6/10/2016 4:39:02 PM	A34847
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.064	0.0011	0.0020		mg/L	1	6/20/2016 4:03:28 PM	25859
Cadmium	ND	0.00062	0.0020		mg/L	1	6/17/2016 6:38:57 PM	25859
Chromium	ND	0.0022	0.0060		mg/L	1	6/17/2016 6:38:57 PM	25859
Copper	ND	0.0051	0.0060		mg/L	1	6/17/2016 6:38:57 PM	25859
Iron	0.010	0.0072	0.020	J	mg/L	1	6/20/2016 4:03:28 PM	25859
Manganese	0.11	0.0015	0.0020	*	mg/L	1	6/20/2016 4:03:28 PM	25859
Silver	ND	0.0021	0.0050		mg/L	1	6/17/2016 6:38:57 PM	25859
Zinc	ND	0.0039	0.010		mg/L	1	6/17/2016 6:38:57 PM	25859
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0036	0.00069	0.0050	J	mg/L	5	6/16/2016 2:30:56 PM	A34971

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-10

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 2:10:00 PM

Lab ID: 1606426-007

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Lead	0.00022	0.00017	0.00050	J	mg/L	1	6/14/2016 7:20:56 PM	C34915
Selenium	0.016	0.00021	0.0010		mg/L	1	6/14/2016 7:20:56 PM	C34915
Uranium	0.058	0.00026	0.0025	*	mg/L	5	6/16/2016 2:30:56 PM	A34971
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0023	0.0015	0.0050	J	mg/L	5	6/17/2016 6:58:05 PM	25859
Lead	0.00024	0.000047	0.00050	J	mg/L	1	6/16/2016 8:53:53 PM	25859
Selenium	0.015	0.00062	0.0050		mg/L	5	6/17/2016 6:58:05 PM	25859
Uranium	0.057	0.000025	0.0025	*	mg/L	5	6/17/2016 6:58:05 PM	25859
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000066	0.000053	0.00020	J	mg/L	1	6/13/2016 4:01:04 PM	25806
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Toluene	ND	0.12	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Methyl tert-butyl ether (MTBE)	33	0.21	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2-Dichloroethane (EDC)	0.51	0.12	1.0	J	µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Naphthalene	ND	0.093	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Acetone	ND	4.9	10		µg/L	1	6/15/2016 4:59:00 AM	A34909
Bromobenzene	ND	0.098	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Bromoform	ND	0.10	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Bromomethane	ND	0.78	3.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
2-Butanone	ND	0.74	10		µg/L	1	6/15/2016 4:59:00 AM	A34909
Carbon disulfide	ND	0.60	10		µg/L	1	6/15/2016 4:59:00 AM	A34909
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Chloroethane	ND	0.19	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Chloroform	ND	0.089	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Chloromethane	ND	0.21	3.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
cis-1,2-DCE	0.31	0.12	1.0	J	µg/L	1	6/15/2016 4:59:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-10

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 2:10:00 PM

Lab ID: 1606426-007

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Dibromomethane	ND	0.12	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1-Dichloroethane	1.1	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1-Dichloroethene	0.90	0.11	1.0	J	µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
2-Hexanone	ND	0.84	10		µg/L	1	6/15/2016 4:59:00 AM	A34909
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/15/2016 4:59:00 AM	A34909
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Styrene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/15/2016 4:59:00 AM	A34909
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/15/2016 4:59:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	91.8	0	70-130		%Rec	1	6/15/2016 4:59:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1606426**

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-10

Project: 2016 2nd Quarter-OW Wells

Collection Date: 6/6/2016 2:10:00 PM

Lab ID: 1606426-007

Matrix: AQUEOUS

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Surr: 4-Bromofluorobenzene	99.9	0	70-130		%Rec	1	6/15/2016 4:59:00 AM	A34909
Surr: Dibromofluoromethane	94.8	0	70-130		%Rec	1	6/15/2016 4:59:00 AM	A34909
Surr: Toluene-d8	101	0	70-130		%Rec	1	6/15/2016 4:59:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: 2016 2nd Quarter-OW Wells

Collection Date:

Lab ID: 1606426-008

Matrix: TRIP BLANK

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Toluene	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Ethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Naphthalene	ND	0.093	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Acetone	ND	4.9	10		µg/L	1	6/15/2016 5:22:00 AM	A34909
Bromobenzene	ND	0.098	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Bromodichloromethane	ND	0.14	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Bromoform	ND	0.10	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Bromomethane	ND	0.78	3.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
2-Butanone	ND	0.74	10		µg/L	1	6/15/2016 5:22:00 AM	A34909
Carbon disulfide	ND	0.60	10		µg/L	1	6/15/2016 5:22:00 AM	A34909
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Chlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Chloroethane	ND	0.19	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Chloroform	ND	0.089	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Chloromethane	ND	0.21	3.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Dibromochloromethane	ND	0.087	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Dibromomethane	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606426

Date Reported: 7/5/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: 2016 2nd Quarter-OW Wells

Collection Date:

Lab ID: 1606426-008

Matrix: TRIP BLANK

Received Date: 6/8/2016 2:18:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
2-Hexanone	ND	0.84	10		µg/L	1	6/15/2016 5:22:00 AM	A34909
Isopropylbenzene	ND	0.10	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	6/15/2016 5:22:00 AM	A34909
Methylene Chloride	ND	0.19	3.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
n-Butylbenzene	ND	0.16	3.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
n-Propylbenzene	ND	0.13	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Styrene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Vinyl chloride	ND	0.20	1.0		µg/L	1	6/15/2016 5:22:00 AM	A34909
Xylenes, Total	ND	0.37	1.5		µg/L	1	6/15/2016 5:22:00 AM	A34909
Surr: 1,2-Dichloroethane-d4	91.5	0	70-130		%Rec	1	6/15/2016 5:22:00 AM	A34909
Surr: 4-Bromofluorobenzene	98.7	0	70-130		%Rec	1	6/15/2016 5:22:00 AM	A34909
Surr: Dibromofluoromethane	94.5	0	70-130		%Rec	1	6/15/2016 5:22:00 AM	A34909
Surr: Toluene-d8	97.8	0	70-130		%Rec	1	6/15/2016 5:22:00 AM	A34909

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A34847			RunNo: 34847					
Prep Date:		Analysis Date: 6/10/2016			SeqNo: 1075722		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34847		RunNo: 34847					
Prep Date:			Analysis Date: 6/10/2016		SeqNo: 1075723		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	85	115			
Cadmium	0.51	0.0020	0.5000	0	103	85	115			
Calcium	49	1.0	50.00	0	97.9	85	115			
Chromium	0.50	0.0060	0.5000	0	99.5	85	115			
Copper	0.50	0.0060	0.5000	0	101	85	115			
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Magnesium	50	1.0	50.00	0	99.0	85	115			
Manganese	0.49	0.0020	0.5000	0	98.5	85	115			
Potassium	48	1.0	50.00	0	95.4	85	115			
Silver	0.10	0.0050	0.1000	0	102	85	115			
Sodium	49	1.0	50.00	0	97.8	85	115			
Zinc	0.49	0.010	0.5000	0	98.6	85	115			

Sample ID	LLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34847		RunNo: 34847					
Prep Date:			Analysis Date: 6/10/2016		SeqNo: 1075724		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0021	0.0020	0.002000	0	106	50	150			
Cadmium	0.0022	0.0020	0.002000	0	112	50	150			
Calcium	0.52	1.0	0.5000	0	105	50	150			J
Chromium	0.0060	0.0060	0.006000	0	100	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34847		RunNo: 34847					
Prep Date:			Analysis Date: 6/10/2016		SeqNo: 1075724		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	0.0054	0.0060	0.006000	0	89.2	50	150			J
Iron	0.020	0.020	0.02000	0	98.4	50	150			J
Magnesium	0.53	1.0	0.5000	0	106	50	150			J
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Potassium	0.49	1.0	0.5000	0	98.1	50	150			J
Silver	0.0048	0.0050	0.005000	0	96.4	50	150			J
Sodium	0.51	1.0	0.5000	0	103	50	150			J
Zinc	0.0054	0.010	0.005000	0	108	50	150			J

Sample ID	MB-A		SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW		Batch ID: A34876		RunNo: 34876					
Prep Date:			Analysis Date: 6/13/2016		SeqNo: 1077108		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Sodium	ND	1.0								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34876		RunNo: 34876					
Prep Date:			Analysis Date: 6/13/2016		SeqNo: 1077109		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	95.4	85	115			
Sodium	49	1.0	50.00	0	98.9	85	115			

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A34876		RunNo: 34876					
Prep Date:			Analysis Date: 6/13/2016		SeqNo: 1077110		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.018	0.020	0.02000	0	92.0	50	150			J
Sodium	0.50	1.0	0.5000	0	101	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MB-25859		SampType:	MBLK		TestCode:	EPA Method 200.7: Total Metals			
Client ID:	PBW		Batch ID:	25859		RunNo:	34992			
Prep Date:	6/15/2016		Analysis Date:	6/17/2016		SeqNo:	1081603	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-25859		SampType:	LCS		TestCode:	EPA Method 200.7: Total Metals			
Client ID:	LCSW		Batch ID:	25859		RunNo:	34992			
Prep Date:	6/15/2016		Analysis Date:	6/17/2016		SeqNo:	1081604	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	98.5	85	115			
Cadmium	0.50	0.0020	0.5000	0	100	85	115			
Chromium	0.49	0.0060	0.5000	0	97.4	85	115			
Copper	0.50	0.0060	0.5000	0	99.9	85	115			
Iron	0.48	0.020	0.5000	0	96.7	85	115			
Manganese	0.48	0.0020	0.5000	0	96.7	85	115			
Silver	0.10	0.0050	0.1000	0	101	85	115			
Zinc	0.48	0.010	0.5000	0	96.5	85	115			

Sample ID	LLCS-25859		SampType:	LCSLL		TestCode:	EPA Method 200.7: Total Metals			
Client ID:	BatchQC		Batch ID:	25859		RunNo:	34992			
Prep Date:	6/15/2016		Analysis Date:	6/17/2016		SeqNo:	1081605	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	103	50	150			
Cadmium	0.0023	0.0020	0.002000	0	115	50	150			
Chromium	0.0056	0.0060	0.006000	0	93.8	50	150			J
Copper	0.0067	0.0060	0.006000	0	112	50	150			
Iron	0.022	0.020	0.02000	0	110	50	150			
Manganese	0.0022	0.0020	0.002000	0	109	50	150			
Silver	0.0051	0.0050	0.005000	0	102	50	150			
Zinc	0.0062	0.010	0.005000	0	123	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: C34915		RunNo: 34915					
Prep Date:			Analysis Date: 6/14/2016		SeqNo: 1078549		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.011	0.00050	0.01250	0	91.3	85	115			
Selenium	0.023	0.0010	0.02500	0	91.6	85	115			
Uranium	0.012	0.00050	0.01250	0	93.9	85	115			

Sample ID	LLLCS			SampType:	LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC			Batch ID:	C34915			RunNo: 34915					
Prep Date:				Analysis Date:	6/14/2016			SeqNo:	1078550		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Lead	0.00048	0.00050	0.0005000	0	95.5	50	150			J			
Selenium	0.00090	0.0010	0.001000	0	90.1	50	150			J			
Uranium	0.00047	0.00050	0.0005000	0	95.0	50	150			J			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: C34915			RunNo: 34915					
Prep Date:		Analysis Date: 6/14/2016			SeqNo: 1078551		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: A34971		RunNo: 34971					
Prep Date:			Analysis Date: 6/16/2016		SeqNo: 1080463		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0	105	85	115			
Selenium	0.026	0.0010	0.02500	0	105	85	115			
Uranium	0.012	0.00050	0.01250	0	97.4	85	115			

Sample ID	LLLCS			SampType:	LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC			Batch ID:	A34971			RunNo: 34971					
Prep Date:				Analysis Date:	6/16/2016			SeqNo:	1080464		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	112	50	150						
Selenium	0.0012	0.0010	0.001000	0	121	50	150						
Uranium	0.00050	0.00050	0.0005000	0	100	50	150						

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Batch ID: A34971			RunNo: 34971						
Prep Date:		Analysis Date: 6/16/2016			SeqNo: 1080465		Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.0010								
Selenium		ND	0.0010								
Uranium		ND	0.00050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MB-25859	SampType:	MBLK		TestCode:	200.8 ICPMS Metals:Total				
Client ID:	PBW	Batch ID:	25859		RunNo:	34984				
Prep Date:	6/15/2016	Analysis Date:	6/16/2016		SeqNo:	1081261	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								
Uranium	ND	0.00050								

Sample ID	MSLCS-25859		SampType: LCS		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	LCSW		Batch ID: 25859		RunNo: 34984					
Prep Date:	6/15/2016		Analysis Date: 6/16/2016		SeqNo: 1081262		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	91.3	85	115			
Lead	0.012	0.00050	0.01250	0	98.5	85	115			
Uranium	0.012	0.00050	0.01250	0	97.6	85	115			

Sample ID	MSLLCS-25859		SampType: LCSLL		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	BatchQC		Batch ID: 25859		RunNo: 34984					
Prep Date:	6/15/2016		Analysis Date: 6/16/2016		SeqNo: 1081263		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00096	0.0010	0.001000	0	96.5	50	150			J
Lead	0.00051	0.00050	0.0005000	0	102	50	150			
Uranium	0.00050	0.00050	0.0005000	0	100	50	150			

Sample ID	MB-25859		SampType: MBLK		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	PBW		Batch ID: 25859		RunNo: 34995					
Prep Date:	6/15/2016		Analysis Date: 6/17/2016		SeqNo: 1081667		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID	MSLCS-25859		SampType: LCS		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	LCSW		Batch ID: 25859		RunNo: 34995					
Prep Date:	6/15/2016		Analysis Date: 6/17/2016		SeqNo: 1081668		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.022	0.0010	0.02500	0	90.0	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MSLLCS-25859	SampType:	LCSLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	BatchQC	Batch ID:	25859	RunNo:	34995					
Prep Date:	6/15/2016	Analysis Date:	6/17/2016	SeqNo:	1081669	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.00079	0.0010	0.001000	0	79.4	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	MB-25806	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	25806	RunNo:	34868					
Prep Date:	6/13/2016	Analysis Date:	6/13/2016	SeqNo:	1076845	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000090	0.00020								J

Sample ID	LCS-25806	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	25806	RunNo:	34868					
Prep Date:	6/13/2016	Analysis Date:	6/13/2016	SeqNo:	1076846	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R34830		RunNo: 34830							
Prep Date:	Analysis Date: 6/9/2016		SeqNo: 1075096		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								
Phosphorus, Orthophosphate (As P	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: R34830		RunNo: 34830							
Prep Date:	Analysis Date: 6/9/2016		SeqNo: 1075097		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	4.9	0.50	5.000	0	98.2	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.9	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	103	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: A35046		RunNo: 35046							
Prep Date:	Analysis Date: 6/20/2016		SeqNo: 1083722		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: A35046		RunNo: 35046							
Prep Date:	Analysis Date: 6/20/2016		SeqNo: 1083723		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	95.5	90	110			
Bromide	2.4	0.10	2.500	0	97.0	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	LCS-25749		SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	LCSW		Batch ID: 25749			RunNo: 34795				
Prep Date:	6/9/2016		Analysis Date: 6/9/2016			SeqNo: 1074145	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	111	71.3	139			
Surr: DNOP	0.53		0.5000		105	70	141			

Sample ID	MB-25749		SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	PBW		Batch ID: 25749			RunNo: 34795				
Prep Date:	6/9/2016		Analysis Date: 6/9/2016			SeqNo: 1074146	Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	0.83		1.000		83.1	70	141			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A34874	RunNo:	34874					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1076985	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		109	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A34874	RunNo:	34874					
Prep Date:		Analysis Date:	6/13/2016	SeqNo:	1076986	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.42	0.050	0.5000	0	84.9	80	120			
Surr: BFB	23		20.00		115	66.4	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	100NG LCS2		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW		Batch ID: A34909		RunNo: 34909					
Prep Date:			Analysis Date: 6/14/2016		SeqNo: 1078463		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.0	70	130			
Toluene	20	1.0	20.00	0	98.6	70	130			
Chlorobenzene	20	1.0	20.00	0	98.8	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	94.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.9	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.7	70	130			
Surr: Toluene-d8	9.8		10.00		98.2	70	130			

Sample ID	rb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: A34909			RunNo: 34909					
Prep Date:		Analysis Date: 6/14/2016			SeqNo: 1078464		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	0.22	2.0								J
1-Methylnaphthalene	0.31	4.0								J
2-Methylnaphthalene	0.36	4.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	rb2	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	A34909	RunNo:	34909					
Prep Date:		Analysis Date:	6/14/2016	SeqNo:	1078464	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	1.2	10								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606426

05-Jul-16

Client: Western Refining Southwest, Gallup

Project: 2016 2nd Quarter-OW Wells

Sample ID	rb2		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	A34909		RunNo:	34909			
Prep Date:			Analysis Date:	6/14/2016		SeqNo:	1078464	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	9.6		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	9.6		10.00		95.9	70	130			

Sample ID	1606426-002AMS2		SampType:	MS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	OW-14		Batch ID:	A34909		RunNo:	34909			
Prep Date:			Analysis Date:	6/15/2016		SeqNo:	1078482	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	8500	10	200.0	7264	639	70	130			ES
Toluene	190	10	200.0	2.580	95.2	70	130			
Chlorobenzene	190	10	200.0	0	95.3	70	130			
1,1-Dichloroethene	200	10	200.0	0	98.3	70	130			
Trichloroethene (TCE)	180	10	200.0	0	88.3	70	130			
Surr: 1,2-Dichloroethane-d4	95		100.0		95.0	70	130			
Surr: 4-Bromofluorobenzene	100		100.0		99.9	70	130			
Surr: Dibromofluoromethane	94		100.0		93.7	70	130			
Surr: Toluene-d8	97		100.0		97.1	70	130			

Sample ID	1606426-002AMSD2		SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	OW-14		Batch ID:	A34909		RunNo:	34909			
Prep Date:			Analysis Date:	6/15/2016		SeqNo:	1078493	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	8300	10	200.0	7264	536	70	130	2.46	20	ES
Toluene	190	10	200.0	2.580	92.6	70	130	2.76	20	
Chlorobenzene	190	10	200.0	0	94.0	70	130	1.31	20	
1,1-Dichloroethene	190	10	200.0	0	92.9	70	130	5.60	20	
Trichloroethene (TCE)	170	10	200.0	0	86.2	70	130	2.37	20	
Surr: 1,2-Dichloroethane-d4	95		100.0		94.6	70	130	0	0	
Surr: 4-Bromofluorobenzene	100		100.0		99.9	70	130	0	0	
Surr: Dibromofluoromethane	92		100.0		92.4	70	130	0	0	
Surr: Toluene-d8	98		100.0		97.7	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

Sample Log-In Check List

Client Name: **Western Refining Gallup**

Work Order Number: **1606426**

RcptNo: **1**

Received by/date:

AT

06/08/16

Logged By: **Ashley Gallegos**

6/8/2016 2:18:00 PM

Ag

Completed By: **Ashley Gallegos**

6/8/2016 5:57:58 PM

Ag

Reviewed By:

Ag

06/09/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. 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: *Ag*

Special Handling (if applicable)

16. 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:

per CJ use collection times on sample labels / 06/09/16

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



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

October 18, 2016

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: 2016 Annual/Quarterly

OrderNo.: 1609076

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 9/1/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-14

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 8:42:00 AM

Lab ID: 1609076-001

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	4.1	0.69	1.0		mg/L	1	9/6/2016 1:20:59 PM	27339
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/6/2016 1:20:59 PM	27339
Surr: DNOP	134	0	77.1-144		%Rec	1	9/6/2016 1:20:59 PM	27339
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA	
Gasoline Range Organics (GRO)	31	1.3	2.5		mg/L	50	9/6/2016 10:17:55 AM	R37021
Surr: BFB	83.5	0	66.4-120		%Rec	50	9/6/2016 10:17:55 AM	R37021
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	2.2	0.0066	0.010	*	mg/L	5	9/16/2016 11:10:25 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:08:43 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:08:43 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:08:43 AM	A37246
Iron	4.9	0.10	0.10	*	mg/L	5	9/16/2016 11:10:25 AM	A37246
Manganese	2.2	0.0016	0.010	*	mg/L	5	9/16/2016 11:10:25 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:08:43 AM	A37246
Zinc	0.028	0.0028	0.010		mg/L	1	9/16/2016 11:08:43 AM	A37246
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	2.1	0.0040	0.010	*	mg/L	5	9/29/2016 1:41:43 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 3:50:00 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 3:50:00 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 3:50:00 PM	27573
Iron	4.9	0.10	0.10	*	mg/L	5	9/29/2016 1:41:43 PM	27573
Manganese	2.2	0.0014	0.010	*	mg/L	5	9/29/2016 1:41:43 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 3:50:00 PM	27573
Zinc	0.015	0.0027	0.010		mg/L	1	9/21/2016 3:50:00 PM	27573
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.0086	0.00014	0.0010		mg/L	1	9/13/2016 10:32:10 PM	C37166
Lead	ND	0.00017	0.00050		mg/L	1	9/13/2016 10:32:10 PM	C37166
Selenium	0.012	0.0042	0.020	J	mg/L	20	9/16/2016 3:34:11 PM	B37281
Uranium	0.0054	0.00026	0.0025		mg/L	5	9/15/2016 5:08:47 PM	C37239
200.8 ICPMS METALS:TOTAL							Analyst: DBD	
Arsenic	0.0076	0.0021	0.010	J	mg/L	10	9/16/2016 6:34:34 PM	27450
Lead	0.00014	0.000081	0.00050	J	mg/L	1	9/14/2016 5:12:50 PM	27450
Selenium	0.014	0.0019	0.010		mg/L	10	9/19/2016 3:25:54 PM	27450
Uranium	0.0059	0.00017	0.00050		mg/L	1	9/14/2016 5:12:50 PM	27450
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	8100	48	500		µg/L	500	9/6/2016 8:07:00 PM	R37011

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-14

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 8:42:00 AM

Lab ID: 1609076-001

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Toluene	2.9	0.59	5.0	J	µg/L	5	9/2/2016 4:06:00 PM	R36950
Ethylbenzene	250	0.56	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Methyl tert-butyl ether (MTBE)	580	1.1	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2,4-Trimethylbenzene	7.1	0.55	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,3,5-Trimethylbenzene	0.82	0.58	5.0	J	µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2-Dichloroethane (EDC)	ND	0.58	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.56	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Naphthalene	18	0.46	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
1-Methylnaphthalene	34	1.0	20		µg/L	5	9/2/2016 4:06:00 PM	R36950
2-Methylnaphthalene	ND	0.79	20		µg/L	5	9/2/2016 4:06:00 PM	R36950
Acetone	ND	25	50		µg/L	5	9/2/2016 4:06:00 PM	R36950
Bromobenzene	ND	0.49	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Bromodichloromethane	ND	0.70	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Bromoform	ND	0.51	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Bromomethane	ND	3.9	15		µg/L	5	9/2/2016 4:06:00 PM	R36950
2-Butanone	ND	3.7	50		µg/L	5	9/2/2016 4:06:00 PM	R36950
Carbon disulfide	ND	3.0	50		µg/L	5	9/2/2016 4:06:00 PM	R36950
Carbon Tetrachloride	ND	0.54	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Chlorobenzene	ND	0.57	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Chloroethane	ND	0.96	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
Chloroform	ND	0.44	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Chloromethane	ND	1.1	15		µg/L	5	9/2/2016 4:06:00 PM	R36950
2-Chlorotoluene	ND	2.0	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
4-Chlorotoluene	ND	0.64	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
cis-1,2-DCE	ND	0.62	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.53	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	1.2	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
Dibromochloromethane	ND	0.43	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Dibromomethane	ND	0.60	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2-Dichlorobenzene	ND	2.0	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,3-Dichlorobenzene	ND	0.72	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,4-Dichlorobenzene	ND	0.71	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Dichlorodifluoromethane	ND	1.8	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1-Dichloroethane	ND	0.54	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1-Dichloroethene	ND	0.54	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2-Dichloropropane	ND	0.55	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,3-Dichloropropane	ND	0.78	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
2,2-Dichloropropane	ND	0.83	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1-Dichloropropene	ND	0.67	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-14

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 8:42:00 AM

Lab ID: 1609076-001

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Hexachlorobutadiene	ND	0.99	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
2-Hexanone	ND	4.2	50		µg/L	5	9/2/2016 4:06:00 PM	R36950
Isopropylbenzene	8.5	0.52	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
4-Isopropyltoluene	ND	0.70	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
4-Methyl-2-pentanone	ND	2.1	50		µg/L	5	9/2/2016 4:06:00 PM	R36950
Methylene Chloride	ND	0.94	15		µg/L	5	9/2/2016 4:06:00 PM	R36950
n-Butylbenzene	1.3	0.80	15	J	µg/L	5	9/2/2016 4:06:00 PM	R36950
n-Propylbenzene	11	0.66	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
sec-Butylbenzene	2.2	0.62	5.0	J	µg/L	5	9/2/2016 4:06:00 PM	R36950
Styrene	ND	0.55	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
tert-Butylbenzene	ND	0.58	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.56	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.64	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.76	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
trans-1,2-DCE	ND	2.0	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.52	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.56	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.66	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1,1-Trichloroethane	ND	0.46	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,1,2-Trichloroethane	ND	0.64	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Trichloroethene (TCE)	ND	0.88	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Trichlorofluoromethane	ND	1.0	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
1,2,3-Trichloropropane	ND	1.0	10		µg/L	5	9/2/2016 4:06:00 PM	R36950
Vinyl chloride	ND	0.98	5.0		µg/L	5	9/2/2016 4:06:00 PM	R36950
Xylenes, Total	8.0	1.8	7.5		µg/L	5	9/2/2016 4:06:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	5	9/2/2016 4:06:00 PM	R36950
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	5	9/2/2016 4:06:00 PM	R36950
Surr: Dibromofluoromethane	96.2	0	70-130		%Rec	5	9/2/2016 4:06:00 PM	R36950
Surr: Toluene-d8	101	0	70-130		%Rec	5	9/2/2016 4:06:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 9:40:00 AM

Lab ID: 1609076-002

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/6/2016 2:26:49 PM	27339
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/6/2016 2:26:49 PM	27339
Surr: DNOP	133	0	77.1-144		%Rec	1	9/6/2016 2:26:49 PM	27339
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA	
Gasoline Range Organics (GRO)	6.7	0.25	0.50		mg/L	10	9/6/2016 11:30:37 AM	R37021
Surr: BFB	82.0	0	66.4-120		%Rec	10	9/6/2016 11:30:37 AM	R37021
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.068	0.0013	0.0020		mg/L	1	9/16/2016 11:12:14 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:12:14 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:12:14 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:12:14 AM	A37246
Iron	0.27	0.020	0.020		mg/L	1	9/16/2016 11:12:14 AM	A37246
Manganese	0.30	0.00032	0.0020	*	mg/L	1	9/16/2016 11:12:14 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:12:14 AM	A37246
Zinc	0.028	0.0028	0.010		mg/L	1	9/16/2016 11:12:14 AM	A37246
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	0.065	0.00079	0.0020		mg/L	1	9/21/2016 3:51:43 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 3:51:43 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 3:51:43 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 3:51:43 PM	27573
Iron	0.33	0.020	0.020	*	mg/L	1	9/21/2016 3:51:43 PM	27573
Manganese	0.28	0.00027	0.0020	*	mg/L	1	9/21/2016 3:51:43 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 3:51:43 PM	27573
Zinc	ND	0.0027	0.010		mg/L	1	9/21/2016 3:51:43 PM	27573
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.0026	0.00069	0.0050	J	mg/L	5	9/15/2016 5:11:50 PM	C37239
Lead	ND	0.00084	0.0025		mg/L	5	9/15/2016 5:11:50 PM	C37239
Selenium	0.0065	0.0021	0.010	J	mg/L	10	9/20/2016 1:25:58 PM	B37327
Uranium	0.054	0.00026	0.0025	*	mg/L	5	9/15/2016 5:11:50 PM	C37239
200.8 ICPMS METALS:TOTAL							Analyst: DBD	
Arsenic	ND	0.0021	0.010		mg/L	10	9/16/2016 6:37:35 PM	27450
Lead	ND	0.000081	0.00050		mg/L	1	9/14/2016 5:21:55 PM	27450
Selenium	0.0062	0.0019	0.010	J	mg/L	10	9/16/2016 6:37:35 PM	27450
Uranium	0.053	0.00087	0.0025	*	mg/L	5	9/19/2016 3:28:55 PM	27450
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	0.54	0.096	1.0	J	µg/L	1	9/2/2016 4:30:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 9:40:00 AM

Lab ID: 1609076-002

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Methyl tert-butyl ether (MTBE)	3000	11	50		µg/L	50	9/6/2016 10:43:00 AM	R37011
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2-Dichloroethane (EDC)	0.65	0.12	1.0	J	µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1-Methylnaphthalene	0.26	0.20	4.0	J	µg/L	1	9/2/2016 4:30:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 4:30:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 4:30:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 4:30:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-29

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 9:40:00 AM

Lab ID: 1609076-002

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 4:30:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 4:30:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 4:30:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 4:30:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	9/2/2016 4:30:00 PM	R36950
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	9/2/2016 4:30:00 PM	R36950
Surr: Dibromofluoromethane	97.2	0	70-130		%Rec	1	9/2/2016 4:30:00 PM	R36950
Surr: Toluene-d8	102	0	70-130		%Rec	1	9/2/2016 4:30:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 10:45:00 AM

Lab ID: 1609076-003

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/6/2016 2:48:38 PM	27339
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/6/2016 2:48:38 PM	27339
Surr: DNOP	132	0	77.1-144		%Rec	1	9/6/2016 2:48:38 PM	27339
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA	
Gasoline Range Organics (GRO)	0.068	0.025	0.050		mg/L	1	9/6/2016 11:55:03 AM	R37021
Surr: BFB	79.9	0	66.4-120		%Rec	1	9/6/2016 11:55:03 AM	R37021
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.020	0.0013	0.0020		mg/L	1	9/16/2016 11:22:07 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:22:07 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:22:07 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:22:07 AM	A37246
Iron	ND	0.020	0.020		mg/L	1	9/16/2016 11:22:07 AM	A37246
Manganese	0.021	0.00032	0.0020		mg/L	1	9/16/2016 11:22:07 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:22:07 AM	A37246
Zinc	0.042	0.0028	0.010		mg/L	1	9/16/2016 11:22:07 AM	A37246
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	0.019	0.00079	0.0020		mg/L	1	9/21/2016 4:38:08 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 4:38:08 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 4:38:08 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 4:38:08 PM	27573
Iron	ND	0.020	0.020		mg/L	1	9/21/2016 4:38:08 PM	27573
Manganese	0.020	0.00027	0.0020		mg/L	1	9/21/2016 4:38:08 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 4:38:08 PM	27573
Zinc	ND	0.0027	0.010		mg/L	1	9/21/2016 4:38:08 PM	27573
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.0015	0.00069	0.0050	J	mg/L	5	9/15/2016 5:14:54 PM	C37239
Lead	ND	0.00084	0.0025		mg/L	5	9/15/2016 5:14:54 PM	C37239
Selenium	0.0020	0.0011	0.0050	J	mg/L	5	9/15/2016 5:14:54 PM	C37239
Uranium	0.017	0.00026	0.0025		mg/L	5	9/15/2016 5:14:54 PM	C37239
200.8 ICPMS METALS:TOTAL							Analyst: DBD	
Arsenic	0.0015	0.00021	0.0010		mg/L	1	9/14/2016 5:24:55 PM	27450
Lead	ND	0.000081	0.00050		mg/L	1	9/14/2016 5:24:55 PM	27450
Selenium	0.0021	0.00019	0.0010		mg/L	1	9/14/2016 5:24:55 PM	27450
Uranium	0.018	0.00087	0.0025		mg/L	5	9/19/2016 3:31:55 PM	27450
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	0.13	0.096	1.0	J	µg/L	1	9/2/2016 4:54:00 PM	R36950

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 10:45:00 AM

Lab ID: 1609076-003

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Methyl tert-butyl ether (MTBE)	38	0.21	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2-Dichloroethane (EDC)	0.79	0.12	1.0	J	µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 4:54:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 4:54:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 4:54:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-13

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 10:45:00 AM

Lab ID: 1609076-003

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 4:54:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 4:54:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 4:54:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 4:54:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	9/2/2016 4:54:00 PM	R36950
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/2/2016 4:54:00 PM	R36950
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	9/2/2016 4:54:00 PM	R36950
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/2/2016 4:54:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 11:50:00 AM

Lab ID: 1609076-004

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/6/2016 3:10:28 PM	27339
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/6/2016 3:10:28 PM	27339
Surr: DNOP	133	0	77.1-144		%Rec	1	9/6/2016 3:10:28 PM	27339
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA	
Gasoline Range Organics (GRO)	6.9	0.25	0.50		mg/L	10	9/6/2016 12:19:22 PM	R37021
Surr: BFB	85.3	0	66.4-120		%Rec	10	9/6/2016 12:19:22 PM	R37021
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS	
Barium	0.10	0.0013	0.0020		mg/L	1	9/16/2016 11:26:13 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:26:13 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:26:13 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:26:13 AM	A37246
Iron	0.071	0.020	0.020		mg/L	1	9/16/2016 11:26:13 AM	A37246
Manganese	0.038	0.00032	0.0020		mg/L	1	9/16/2016 11:26:13 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:26:13 AM	A37246
Zinc	0.044	0.0028	0.010		mg/L	1	9/16/2016 11:26:13 AM	A37246
EPA METHOD 200.7: TOTAL METALS							Analyst: MED	
Barium	0.096	0.00079	0.0020		mg/L	1	9/21/2016 4:40:18 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 4:40:18 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 4:40:18 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 4:40:18 PM	27573
Iron	0.071	0.020	0.020		mg/L	1	9/21/2016 4:40:18 PM	27573
Manganese	0.035	0.00027	0.0020		mg/L	1	9/21/2016 4:40:18 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 4:40:18 PM	27573
Zinc	ND	0.0027	0.010		mg/L	1	9/21/2016 4:40:18 PM	27573
EPA 200.8: DISSOLVED METALS							Analyst: DBD	
Arsenic	0.0031	0.00069	0.0050	J	mg/L	5	9/15/2016 5:17:57 PM	C37239
Lead	0.00019	0.00017	0.00050	J	mg/L	1	9/13/2016 11:02:48 PM	D37166
Selenium	0.0075	0.0042	0.020	J	mg/L	20	9/16/2016 3:37:15 PM	B37281
Uranium	0.046	0.00026	0.0025	*	mg/L	5	9/15/2016 5:17:57 PM	C37239
200.8 ICPMS METALS:TOTAL							Analyst: DBD	
Arsenic	ND	0.0021	0.010		mg/L	10	9/16/2016 6:43:36 PM	27450
Lead	0.00025	0.000081	0.00050	J	mg/L	1	9/14/2016 5:30:56 PM	27450
Selenium	0.0067	0.0019	0.010	J	mg/L	10	9/16/2016 6:43:36 PM	27450
Uranium	0.048	0.00087	0.0025	*	mg/L	5	9/19/2016 3:44:00 PM	27450
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 11:50:00 AM

Lab ID: 1609076-004

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Methyl tert-butyl ether (MTBE)	3000	11	50		µg/L	50	9/6/2016 11:07:00 AM	R37011
1,2,4-Trimethylbenzene	0.18	0.11	1.0	J	µg/L	1	9/2/2016 5:17:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2-Dichloroethane (EDC)	0.32	0.12	1.0	J	µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 5:17:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 5:17:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 5:17:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-30

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 11:50:00 AM

Lab ID: 1609076-004

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 5:17:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 5:17:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
sec-Butylbenzene	0.37	0.12	1.0	J	µg/L	1	9/2/2016 5:17:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 5:17:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 5:17:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	9/2/2016 5:17:00 PM	R36950
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	9/2/2016 5:17:00 PM	R36950
Surr: Dibromofluoromethane	94.9	0	70-130		%Rec	1	9/2/2016 5:17:00 PM	R36950
Surr: Toluene-d8	99.8	0	70-130		%Rec	1	9/2/2016 5:17:00 PM	R36950

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-3

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 2:40:00 PM

Lab ID: 1609076-005

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS								
							Analyst: MRA	
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/2/2016 10:06:23 PM	R36995
EPA METHOD 200.7: DISSOLVED METALS								
							Analyst: ELS	
Barium	0.011	0.0013	0.0020		mg/L	1	9/16/2016 11:31:17 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:31:17 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:31:17 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:31:17 AM	A37246
Iron	0.092	0.020	0.020		mg/L	1	9/16/2016 11:31:17 AM	A37246
Manganese	0.0014	0.00032	0.0020	J	mg/L	1	9/16/2016 11:31:17 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:31:17 AM	A37246
Zinc	0.011	0.0028	0.010		mg/L	1	9/16/2016 11:31:17 AM	A37246
EPA METHOD 200.7: TOTAL METALS								
							Analyst: MED	
Barium	0.011	0.00079	0.0020		mg/L	1	9/21/2016 4:42:16 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 4:42:16 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 4:42:16 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 4:42:16 PM	27573
Iron	0.24	0.020	0.020		mg/L	1	9/21/2016 4:42:16 PM	27573
Manganese	0.0016	0.00027	0.0020	J	mg/L	1	9/21/2016 4:42:16 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 4:42:16 PM	27573
Zinc	0.0072	0.0027	0.010	J	mg/L	1	9/21/2016 4:42:16 PM	27573
EPA 200.8: DISSOLVED METALS								
							Analyst: DBD	
Arsenic	0.0035	0.00014	0.0010		mg/L	1	9/13/2016 11:05:52 PM	D37166
Lead	ND	0.00017	0.00050		mg/L	1	9/13/2016 11:05:52 PM	D37166
Selenium	0.0018	0.0011	0.0050	J	mg/L	5	9/15/2016 5:21:01 PM	C37239
Uranium	0.0015	0.00026	0.0025	J	mg/L	5	9/15/2016 5:21:01 PM	C37239
200.8 ICPMS METALS:TOTAL								
							Analyst: DBD	
Arsenic	0.0041	0.00021	0.0010		mg/L	1	9/14/2016 5:39:58 PM	27450
Lead	0.00025	0.000081	0.00050	J	mg/L	1	9/14/2016 5:39:58 PM	27450
Selenium	0.0017	0.00019	0.0010		mg/L	1	9/14/2016 5:39:58 PM	27450
Uranium	0.0017	0.00017	0.00050		mg/L	1	9/14/2016 5:39:58 PM	27450
EPA METHOD 8270C: SEMIVOLATILES								
							Analyst: JDC	
Acenaphthene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Acenaphthylene	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Aniline	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Anthracene	ND	2.5	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Azobenzene	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Benz(a)anthracene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Benzo(a)pyrene	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-3

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 2:40:00 PM

Lab ID: 1609076-005

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Benzoic acid	8.5	2.6	20	J	µg/L	1	9/10/2016 11:58:13 PM	27341
Benzyl alcohol	ND	3.0	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Bis(2-ethylhexyl)phthalate	4.1	2.6	10	J	µg/L	1	9/10/2016 11:58:13 PM	27341
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Carbazole	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4-Chloroaniline	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Chloronaphthalene	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Chlorophenol	ND	2.2	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Chrysene	ND	2.8	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Di-n-octyl phthalate	4.3	2.0	10	J	µg/L	1	9/10/2016 11:58:13 PM	27341
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Dibenzofuran	ND	2.5	10		µg/L	1	9/10/2016 11:58:13 PM	27341
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Diethyl phthalate	3.7	2.7	10	J	µg/L	1	9/10/2016 11:58:13 PM	27341
Dimethyl phthalate	7.9	2.4	10	J	µg/L	1	9/10/2016 11:58:13 PM	27341
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	9/10/2016 11:58:13 PM	27341
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	9/10/2016 11:58:13 PM	27341
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	9/10/2016 11:58:13 PM	27341
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Fluoranthene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Fluorene	ND	2.7	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Hexachlorobenzene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Hexachlorobutadiene	ND	2.2	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341

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	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609076

Date Reported: 10/18/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-3

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 2:40:00 PM

Lab ID: 1609076-005

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Hexachloroethane	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Isophorone	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
1-Methylnaphthalene	ND	2.9	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Methylnaphthalene	ND	2.9	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Methylphenol	ND	2.5	10		µg/L	1	9/10/2016 11:58:13 PM	27341
3+4-Methylphenol	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	9/10/2016 11:58:13 PM	27341
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Naphthalene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Nitroaniline	ND	2.8	10		µg/L	1	9/10/2016 11:58:13 PM	27341
3-Nitroaniline	ND	2.9	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4-Nitroaniline	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Nitrobenzene	ND	2.8	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2-Nitrophenol	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
4-Nitrophenol	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Pentachlorophenol	ND	2.3	20		µg/L	1	9/10/2016 11:58:13 PM	27341
Phenanthrene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Phenol	ND	2.0	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Pyrene	ND	3.1	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Pyridine	ND	2.2	10		µg/L	1	9/10/2016 11:58:13 PM	27341
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	9/10/2016 11:58:13 PM	27341
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	9/10/2016 11:58:13 PM	27341
Surr: 2-Fluorophenol	45.9	0	15-123		%Rec	1	9/10/2016 11:58:13 PM	27341
Surr: Phenol-d5	46.0	0	15-124		%Rec	1	9/10/2016 11:58:13 PM	27341
Surr: 2,4,6-Tribromophenol	58.3	0	18.4-134		%Rec	1	9/10/2016 11:58:13 PM	27341
Surr: Nitrobenzene-d5	88.5	0	28.8-134		%Rec	1	9/10/2016 11:58:13 PM	27341
Surr: 2-Fluorobiphenyl	79.1	0	35.9-125		%Rec	1	9/10/2016 11:58:13 PM	27341
Surr: 4-Terphenyl-d14	42.2	0	15-146		%Rec	1	9/10/2016 11:58:13 PM	27341
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Methyl tert-butyl ether (MTBE)	0.84	0.21	1.0	J	µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Western Refining Southwest, Gallup**Client Sample ID:** PW-3**Project:** 2016 Annual/Quarterly**Collection Date:** 8/31/2016 2:40:00 PM**Lab ID:** 1609076-005**Matrix:** AQUEOUS**Received Date:** 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 5:41:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 5:41:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 5:41:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 5:41:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 5:41:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 5:41:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-3

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 2:40:00 PM

Lab ID: 1609076-005

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 5:41:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 5:41:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	9/2/2016 5:41:00 PM	R36950
Surr: 4-Bromofluorobenzene	101	0	70-130		%Rec	1	9/2/2016 5:41:00 PM	R36950
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	9/2/2016 5:41:00 PM	R36950
Surr: Toluene-d8	101	0	70-130		%Rec	1	9/2/2016 5:41:00 PM	R36950

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-4

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 3:10:00 PM

Lab ID: 1609076-006

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS								
							Analyst: MRA	
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/2/2016 10:18:47 PM	R36995
EPA METHOD 200.7: DISSOLVED METALS								
							Analyst: ELS	
Barium	0.014	0.0013	0.0020		mg/L	1	9/16/2016 11:35:12 AM	A37246
Cadmium	ND	0.00075	0.0020		mg/L	1	9/16/2016 11:35:12 AM	A37246
Chromium	ND	0.0018	0.0060		mg/L	1	9/16/2016 11:35:12 AM	A37246
Copper	ND	0.0040	0.0060		mg/L	1	9/16/2016 11:35:12 AM	A37246
Iron	0.061	0.020	0.020		mg/L	1	9/16/2016 11:35:12 AM	A37246
Manganese	0.00098	0.00032	0.0020	J	mg/L	1	9/16/2016 11:35:12 AM	A37246
Silver	ND	0.0028	0.0050		mg/L	1	9/16/2016 11:35:12 AM	A37246
Zinc	ND	0.0028	0.010		mg/L	1	9/16/2016 11:35:12 AM	A37246
EPA METHOD 200.7: TOTAL METALS								
							Analyst: MED	
Barium	0.014	0.00079	0.0020		mg/L	1	9/21/2016 4:44:10 PM	27573
Cadmium	ND	0.0015	0.0020		mg/L	1	9/21/2016 4:44:10 PM	27573
Chromium	ND	0.0027	0.0060		mg/L	1	9/21/2016 4:44:10 PM	27573
Copper	ND	0.0030	0.0060		mg/L	1	9/21/2016 4:44:10 PM	27573
Iron	0.14	0.020	0.020		mg/L	1	9/21/2016 4:44:10 PM	27573
Manganese	0.0012	0.00027	0.0020	J	mg/L	1	9/21/2016 4:44:10 PM	27573
Silver	ND	0.0015	0.0050		mg/L	1	9/21/2016 4:44:10 PM	27573
Zinc	0.0036	0.0027	0.010	J	mg/L	1	9/21/2016 4:44:10 PM	27573
EPA 200.8: DISSOLVED METALS								
							Analyst: DBD	
Arsenic	0.0029	0.00014	0.0010		mg/L	1	9/13/2016 11:08:55 PM	D37166
Lead	ND	0.00017	0.00050		mg/L	1	9/13/2016 11:08:55 PM	D37166
Selenium	0.0018	0.0011	0.0050	J	mg/L	5	9/15/2016 5:24:04 PM	C37239
Uranium	0.0015	0.00026	0.0025	J	mg/L	5	9/15/2016 5:24:04 PM	C37239
200.8 ICPMS METALS:TOTAL								
							Analyst: DBD	
Arsenic	0.0037	0.00021	0.0010		mg/L	1	9/14/2016 5:42:59 PM	27450
Lead	ND	0.000081	0.00050		mg/L	1	9/14/2016 5:42:59 PM	27450
Selenium	0.0016	0.00019	0.0010		mg/L	1	9/14/2016 5:42:59 PM	27450
Uranium	0.0018	0.00017	0.00050		mg/L	1	9/14/2016 5:42:59 PM	27450
EPA METHOD 8270C: SEMIVOLATILES								
							Analyst: JDC	
Acenaphthene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Acenaphthylene	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Aniline	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Anthracene	ND	2.5	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Azobenzene	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Benz(a)anthracene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Benzo(a)pyrene	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-4

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 3:10:00 PM

Lab ID: 1609076-006

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Benzoic acid	8.7	2.6	20	J	µg/L	1	9/11/2016 12:26:04 AM	27341
Benzyl alcohol	ND	3.0	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Bis(2-ethylhexyl)phthalate	3.1	2.6	10	J	µg/L	1	9/11/2016 12:26:04 AM	27341
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Carbazole	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4-Chloroaniline	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Chloronaphthalene	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Chlorophenol	ND	2.2	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Chrysene	ND	2.8	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Di-n-octyl phthalate	3.8	2.0	10	J	µg/L	1	9/11/2016 12:26:04 AM	27341
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Dibenzofuran	ND	2.5	10		µg/L	1	9/11/2016 12:26:04 AM	27341
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Diethyl phthalate	2.9	2.7	10	J	µg/L	1	9/11/2016 12:26:04 AM	27341
Dimethyl phthalate	6.4	2.4	10	J	µg/L	1	9/11/2016 12:26:04 AM	27341
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	9/11/2016 12:26:04 AM	27341
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	9/11/2016 12:26:04 AM	27341
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	9/11/2016 12:26:04 AM	27341
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Fluoranthene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Fluorene	ND	2.7	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Hexachlorobenzene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Hexachlorobutadiene	ND	2.2	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609076

Date Reported: 10/18/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-4

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 3:10:00 PM

Lab ID: 1609076-006

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: JDC	
Hexachloroethane	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Isophorone	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
1-Methylnaphthalene	ND	2.9	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Methylnaphthalene	ND	2.9	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Methylphenol	ND	2.5	10		µg/L	1	9/11/2016 12:26:04 AM	27341
3+4-Methylphenol	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	9/11/2016 12:26:04 AM	27341
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Naphthalene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Nitroaniline	ND	2.8	10		µg/L	1	9/11/2016 12:26:04 AM	27341
3-Nitroaniline	ND	2.9	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4-Nitroaniline	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Nitrobenzene	ND	2.8	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2-Nitrophenol	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
4-Nitrophenol	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Pentachlorophenol	ND	2.3	20		µg/L	1	9/11/2016 12:26:04 AM	27341
Phenanthrene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Phenol	ND	2.0	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Pyrene	ND	3.1	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Pyridine	ND	2.2	10		µg/L	1	9/11/2016 12:26:04 AM	27341
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	9/11/2016 12:26:04 AM	27341
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	9/11/2016 12:26:04 AM	27341
Surr: 2-Fluorophenol	32.8	0	15-123		%Rec	1	9/11/2016 12:26:04 AM	27341
Surr: Phenol-d5	33.8	0	15-124		%Rec	1	9/11/2016 12:26:04 AM	27341
Surr: 2,4,6-Tribromophenol	46.2	0	18.4-134		%Rec	1	9/11/2016 12:26:04 AM	27341
Surr: Nitrobenzene-d5	56.1	0	28.8-134		%Rec	1	9/11/2016 12:26:04 AM	27341
Surr: 2-Fluorobiphenyl	52.8	0	35.9-125		%Rec	1	9/11/2016 12:26:04 AM	27341
Surr: 4-Terphenyl-d14	34.8	0	15-146		%Rec	1	9/11/2016 12:26:04 AM	27341
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-4

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 3:10:00 PM

Lab ID: 1609076-006

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 6:04:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 6:04:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 6:04:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 6:04:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 6:04:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 6:04:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: PW-4

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 3:10:00 PM

Lab ID: 1609076-006

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 6:04:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 6:04:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	9/2/2016 6:04:00 PM	R36950
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	9/2/2016 6:04:00 PM	R36950
Surr: Dibromofluoromethane	99.8	0	70-130		%Rec	1	9/2/2016 6:04:00 PM	R36950
Surr: Toluene-d8	99.7	0	70-130		%Rec	1	9/2/2016 6:04:00 PM	R36950

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609076

Date Reported: 10/18/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: 2016 Annual/Quarterly

Collection Date:

Lab ID: 1609076-007

Matrix: TRIP BLANK

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: RAA	
Gasoline Range Organics (GRO)	ND	0.025	0.050		mg/L	1	9/6/2016 12:43:47 PM	R37021
Surr: BFB	85.6	0	66.4-120		%Rec	1	9/6/2016 12:43:47 PM	R37021
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 6:28:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 6:28:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 6:28:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Trip Blank

Project: 2016 Annual/Quarterly

Collection Date:

Lab ID: 1609076-007

Matrix: TRIP BLANK

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 6:28:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 6:28:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 6:28:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 6:28:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	9/2/2016 6:28:00 PM	R36950
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/2/2016 6:28:00 PM	R36950
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	9/2/2016 6:28:00 PM	R36950
Surr: Toluene-d8	101	0	70-130		%Rec	1	9/2/2016 6:28:00 PM	R36950

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Field Blank

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 7:00:00 AM

Lab ID: 1609076-008

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
Benzene	ND	0.096	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Toluene	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Naphthalene	ND	0.093	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Acetone	ND	4.9	10		µg/L	1	9/2/2016 6:51:00 PM	R36950
Bromobenzene	ND	0.098	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Bromoform	ND	0.10	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Bromomethane	ND	0.78	3.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
2-Butanone	ND	0.74	10		µg/L	1	9/2/2016 6:51:00 PM	R36950
Carbon disulfide	ND	0.60	10		µg/L	1	9/2/2016 6:51:00 PM	R36950
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Chloroethane	ND	0.19	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Chloroform	ND	0.089	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Chloromethane	ND	0.21	3.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Dibromomethane	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609076**

Date Reported: **10/18/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: Field Blank

Project: 2016 Annual/Quarterly

Collection Date: 8/31/2016 7:00:00 AM

Lab ID: 1609076-008

Matrix: AQUEOUS

Received Date: 9/1/2016 4:30:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: BCN	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
2-Hexanone	ND	0.84	10		µg/L	1	9/2/2016 6:51:00 PM	R36950
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/2/2016 6:51:00 PM	R36950
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Styrene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/2/2016 6:51:00 PM	R36950
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/2/2016 6:51:00 PM	R36950
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	9/2/2016 6:51:00 PM	R36950
Surr: 4-Bromofluorobenzene	105	0	70-130		%Rec	1	9/2/2016 6:51:00 PM	R36950
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	9/2/2016 6:51:00 PM	R36950
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/2/2016 6:51:00 PM	R36950

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Anatek Labs, Inc.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160908029
Project Name: 1609076

Analytical Results Report

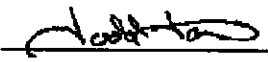
Sample Number	160908029-001	Sampling Date	8/31/2016	Date/Time Received	9/8/2016	12:30 PM
Client Sample ID	1609076-005F / PW-3	Sampling Time	2:40 PM			
Matrix	Water					
Comments						

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	9/14/2016	MER	EPA 335.4	

Sample Number	160908029-002	Sampling Date	8/31/2016	Date/Time Received	9/8/2016	12:30 PM
Client Sample ID	1609076-006F / PW-4	Sampling Time	3:10 PM			
Matrix	Water					
Comments						

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	9/14/2016	MER	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:CE00028; NM:ID00013; NV:ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:CE00095; FL(NELAP): E871099

Anatek Labs, Inc.

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

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 160908029
Project Name: 1609076

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.513	mg/L	0.5	102.6	90-110	9/14/2016	9/14/2016

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
160908027-002	Cyanide	ND	0.509	mg/L	0.5	101.8	90-110	9/14/2016	9/14/2016

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.494	mg/L	0.5	98.8	3.0	0-20	9/14/2016	9/14/2016

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	9/14/2016	9/14/2016

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	MB-A	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: A37246			RunNo: 37246					
Prep Date:		Analysis Date: 9/16/2016			SeqNo: 1155988		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A37246		RunNo: 37246					
Prep Date:			Analysis Date: 9/16/2016		SeqNo: 1155989		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	98.7	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.49	0.0060	0.5000	0	98.5	85	115			
Copper	0.49	0.0060	0.5000	0	97.6	85	115			
Iron	0.49	0.020	0.5000	0	97.3	85	115			
Manganese	0.48	0.0020	0.5000	0	96.9	85	115			
Silver	0.10	0.0050	0.1000	0	100	85	115			
Zinc	0.50	0.010	0.5000	0	99.2	85	115			

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A37246		RunNo: 37246					
Prep Date:			Analysis Date: 9/16/2016		SeqNo: 1155990		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0017	0.0020	0.002000	0	84.5	50	150			J
Cadmium	0.0019	0.0020	0.002000	0	94.5	50	150			J
Chromium	0.0058	0.0060	0.006000	0	97.5	50	150			J
Copper	0.0043	0.0060	0.006000	0	71.0	50	150			J
Iron	0.022	0.020	0.02000	0	110	50	150			
Manganese	0.0021	0.0020	0.002000	0	105	50	150			
Silver	0.0055	0.0050	0.005000	0	110	50	150			
Zinc	0.0057	0.010	0.005000	0	114	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	MB-27573		SampType: MBLK		TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW		Batch ID: 27573		RunNo: 37369					
Prep Date:	9/19/2016		Analysis Date: 9/21/2016		SeqNo: 1161340		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-27573		SampType: LCS		TestCode: EPA Method 200.7: Total Metals					
Client ID:	LCSW		Batch ID: 27573		RunNo: 37369					
Prep Date:	9/19/2016		Analysis Date: 9/21/2016		SeqNo: 1161341		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	96.6	85	115			
Cadmium	0.50	0.0020	0.5000	0	99.9	85	115			
Chromium	0.48	0.0060	0.5000	0	95.8	85	115			
Copper	0.48	0.0060	0.5000	0	95.1	85	115			
Iron	0.48	0.020	0.5000	0	95.3	85	115			
Manganese	0.47	0.0020	0.5000	0	94.6	85	115			
Silver	0.091	0.0050	0.1000	0	91.1	85	115			
Zinc	0.47	0.010	0.5000	0	94.7	85	115			

Sample ID	LLCS-27573		SampType: LCSLL		TestCode: EPA Method 200.7: Total Metals					
Client ID:	BatchQC		Batch ID: 27573		RunNo: 37369					
Prep Date:	9/19/2016		Analysis Date: 9/21/2016		SeqNo: 1161342		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			
Cadmium	0.0020	0.0020	0.002000	0	99.5	50	150			J
Chromium	0.0064	0.0060	0.006000	0	106	50	150			
Copper	0.0057	0.0060	0.006000	0	94.8	50	150			J
Manganese	0.0021	0.0020	0.002000	0	106	50	150			
Silver	0.0049	0.0050	0.005000	0	98.6	50	150			J
Zinc	0.0059	0.010	0.005000	0	117	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	LLLCS-27573	SampType:	LCSLL	TestCode:	EPA Method 200.7: Total Metals					
Client ID:	BatchQC	Batch ID:	27573	RunNo:	37369					
Prep Date:	9/19/2016	Analysis Date:	9/21/2016	SeqNo:	1161352	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.022	0.020	0.02000	0	111	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: C37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152868		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	95.9	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			

Sample ID LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals						
Client ID: LCSW	Batch ID: D37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152869		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	96.5	85	115			
Lead	0.012	0.00050	0.01250	0	95.4	85	115			

Sample ID LCSLL	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: C37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152871		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00088	0.0010	0.001000	0	88.5	50	150			J
Lead	0.00044	0.00050	0.0005000	0	88.8	50	150			J

Sample ID LCSLL	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals						
Client ID: BatchQC	Batch ID: D37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152872		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	104	50	150			
Lead	0.00048	0.00050	0.0005000	0	95.9	50	150			J

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: C37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152874		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								

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: D37166			RunNo: 37166						
Prep Date:	Analysis Date: 9/13/2016			SeqNo: 1152875		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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Batch ID: D37166		RunNo: 37166						
Prep Date:		Analysis Date: 9/13/2016		SeqNo: 1152875		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								

Sample ID	LCS	SampType: LCS			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID: C37239			RunNo: 37239					
Prep Date:		Analysis Date: 9/15/2016			SeqNo: 1155793		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	96.9	85	115			
Lead	0.012	0.00050	0.01250	0	98.5	85	115			
Selenium	0.023	0.0010	0.02500	0	93.0	85	115			
Uranium	0.012	0.00050	0.01250	0	98.2	85	115			

Sample ID	LCSLL	SampType: LCSLL			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID: C37239			RunNo: 37239					
Prep Date:		Analysis Date: 9/15/2016			SeqNo: 1155795			Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.0010	0.0010	0.001000	0	101	50	150			
Lead	0.00053	0.00050	0.0005000	0	107	50	150			
Selenium	0.00097	0.0010	0.001000	0	96.7	50	150			J
Uranium	0.00050	0.00050	0.0005000	0	100	50	150			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: C37239			RunNo: 37239					
Prep Date:		Analysis Date: 9/15/2016			SeqNo: 1155797		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								
Uranium	ND	0.00050								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	LCSW	Batch ID:	B37281	RunNo:	37281					
Prep Date:		Analysis Date:	9/16/2016	SeqNo:	1157676	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.023	0.0010	0.02500	0	93.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	LCSLL		SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	BatchQC		Batch ID: B37281		RunNo: 37281					
Prep Date:			Analysis Date: 9/16/2016		SeqNo: 1157677		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.00096	0.0010	0.001000	0	96.3	50	150			J

Sample ID	MB	SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW	Batch ID:	B37281		RunNo:	37281				
Prep Date:		Analysis Date:	9/16/2016		SeqNo:	1157678	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: B37327		RunNo: 37327					
Prep Date:			Analysis Date: 9/20/2016		SeqNo: 1160758		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.024	0.0010	0.02500	0	95.3	85	115			

Sample ID	LLLCS	SampType:	LCSLL	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	BatchQC	Batch ID:	B37327	RunNo:	37327					
Prep Date:		Analysis Date:	9/20/2016	SeqNo:	1160760	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.00098	0.0010	0.001000	0	98.0	50	150			J

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: B37327			RunNo: 37327					
Prep Date:		Analysis Date: 9/20/2016			SeqNo: 1160762		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	1609076-003CMSLL			SampType:	MSLL			TestCode:	200.8 ICPMS Metals:Total		
Client ID:	OW-13			Batch ID:	27450			RunNo:	37201		
Prep Date:	9/12/2016			Analysis Date:	9/14/2016			SeqNo:	1154586		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.027	0.0010	0.02500	0.001538	103	70	130				
Lead	0.013	0.00050	0.01250	0	105	70	130				
Selenium	0.025	0.0010	0.02500	0.002106	92.4	70	130				

Sample ID	1609076-004CMSDL			SampType:	MSDLL			TestCode:	200.8 ICPMS Metals:Total		
Client ID:	OW-30			Batch ID:	27450			RunNo:	37201		
Prep Date:	9/12/2016			Analysis Date:	9/14/2016			SeqNo:	1154588		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.028	0.0010	0.02500	0.002758	102	70	130	0.395	20		
Lead	0.014	0.00050	0.01250	0.0002451	108	70	130	0.407	20		
Selenium	0.029	0.0010	0.02500	0.006396	90.0	70	130	0.134	20		

Sample ID	1609076-004CMSLL			SampType:	MSLL			TestCode:	200.8 ICPMS Metals:Total		
Client ID:	OW-30			Batch ID:	27450			RunNo:	37201		
Prep Date:	9/12/2016			Analysis Date:	9/14/2016			SeqNo:	1154589		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.028	0.0010	0.02500	0.002758	102	70	130				
Lead	0.014	0.00050	0.01250	0.0002451	108	70	130				
Selenium	0.029	0.0010	0.02500	0.006396	89.8	70	130				

Sample ID	MSLCS-27450			SampType:	LCS			TestCode:	200.8 ICPMS Metals:Total		
Client ID:	LCSW			Batch ID:	27450			RunNo:	37201		
Prep Date:	9/12/2016			Analysis Date:	9/14/2016			SeqNo:	1154603		
								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	96.6	85	115				
Lead	0.012	0.00050	0.01250	0	96.3	85	115				
Selenium	0.023	0.0010	0.02500	0	92.8	85	115				
Uranium	0.012	0.00050	0.01250	0	95.3	85	115				

Sample ID	MSLLCS-27450			SampType:	LCSLL			TestCode:	200.8 ICPMS Metals:Total		
Client ID:	BatchQC			Batch ID:	27450			RunNo:	37201		
Prep Date:	9/12/2016			Analysis Date:	9/14/2016			SeqNo:	1154608		
								Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.0012	0.0010	0.001000	0	121	50	150				
Lead	0.00051	0.00050	0.0005000	0	103	50	150				
Selenium	0.00094	0.0010	0.001000	0	93.9	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	MSLLCS-27450	SampType:	LCSLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	BatchQC	Batch ID:	27450	RunNo:	37201					
Prep Date:	9/12/2016	Analysis Date:	9/14/2016	SeqNo:	1154608	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.00049	0.00050	0.0005000	0	97.4	50	150			J

Sample ID	MB-27450	SampType:	MBLK	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	PBW	Batch ID:	27450	RunNo:	37201					
Prep Date:	9/12/2016	Analysis Date:	9/14/2016	SeqNo:	1154613	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00024	0.0010								J
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	1609076-003CMSLL	SampType:	MSLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-13	Batch ID:	27450	RunNo:	37309					
Prep Date:	9/12/2016	Analysis Date:	9/19/2016	SeqNo:	1158645	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.031	0.0025	0.01250	0.01770	110	70	130			

Sample ID	1609076-004CMSDL	SampType:	MSDLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-30	Batch ID:	27450	RunNo:	37309					
Prep Date:	9/12/2016	Analysis Date:	9/19/2016	SeqNo:	1158647	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.062	0.0025	0.01250	0.04807	112	70	130	0.469	20	

Sample ID	1609076-004CMSLL	SampType:	MSLL	TestCode:	200.8 ICPMS Metals:Total					
Client ID:	OW-30	Batch ID:	27450	RunNo:	37309					
Prep Date:	9/12/2016	Analysis Date:	9/19/2016	SeqNo:	1158648	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.062	0.0025	0.01250	0.04807	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID MB	SampType: mblk		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R36995		RunNo: 36995							
Prep Date:	Analysis Date: 9/2/2016		SeqNo: 1146458		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID LCS	SampType: lcs		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R36995		RunNo: 36995							
Prep Date:	Analysis Date: 9/2/2016		SeqNo: 1146459		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	1609076-001BMS	SampType: MS			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	OW-14	Batch ID: 27339			RunNo: 37010					
Prep Date:	9/6/2016	Analysis Date: 9/6/2016			SeqNo: 1146955		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	9.7	1.0	5.000	4.052	112	79.6	148			
Surr: DNOP	0.64		0.5000		128	77.1	144			

Sample ID	1609076-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015M/D: Diesel Range					
Client ID:	OW-14	Batch ID:	27339	RunNo:	37010					
Prep Date:	9/6/2016	Analysis Date:	9/6/2016	SeqNo:	1146956	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	10	1.0	5.000	4.052	120	79.6	148	3.85	20	
Surr: DNOP	0.66		0.5000		131	77.1	144	0	0	

Sample ID	LCS-27339		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	LCSW		Batch ID: 27339		RunNo: 37010					
Prep Date:	9/6/2016		Analysis Date: 9/6/2016		SeqNo: 1146966		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	105	62.8	153			
Surr: DNOP	0.62		0.5000		124	77.1	144			

Sample ID	MB-27339	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range					
Client ID:	PBW	Batch ID: 27339			RunNo: 37010					
Prep Date:	9/6/2016	Analysis Date: 9/6/2016			SeqNo: 1146967		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.2		1.000		122	77.1	144			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID 1609076-001AMS	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: OW-14	Batch ID: R37021		RunNo: 37021							
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1147557		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	52	2.5	25.00	30.63	84.4	70	130			
Surr: BFB	900		1000		89.8	66.4	120			

Sample ID 1609076-001AMSD	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: OW-14	Batch ID: R37021		RunNo: 37021							
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1147558		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	49	2.5	25.00	30.63	75.0	70	130	4.63	20	
Surr: BFB	900		1000		89.5	66.4	120	0	0	

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSW	Batch ID: R37021		RunNo: 37021							
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1147571		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	80	120			
Surr: BFB	18		20.00		88.0	66.4	120			

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBW	Batch ID: R37021		RunNo: 37021							
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1147572		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	16		20.00		82.2	66.4	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R36950			RunNo: 36950					
Prep Date:		Analysis Date: 9/2/2016			SeqNo: 1146321		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.8	70	130			
Toluene	20	1.0	20.00	0	99.3	70	130			
Chlorobenzene	20	1.0	20.00	0	99.9	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	90.3	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	92.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.7	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.9	70	130			
Surr: Dibromofluoromethane	9.2		10.00		92.0	70	130			
Surr: Toluene-d8	9.7		10.00		97.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36950			RunNo: 36950					
Prep Date:		Analysis Date: 9/2/2016			SeqNo: 1146322		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	0.23	4.0								J
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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R36950	RunNo:	36950					
Prep Date:		Analysis Date:	9/2/2016	SeqNo:	1146322	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R36950			RunNo: 36950					
Prep Date:		Analysis Date: 9/2/2016			SeqNo: 1146322		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	9.4		10.00		94.2	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID	100NG LCS	SampType: LCS		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	LCSW	Batch ID: R37011		RunNo: 37011						
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1146952		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.1	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.8	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	VSB FRIDGE	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID:	PBW	Batch ID: R37011		RunNo: 37011						
Prep Date:	Analysis Date: 9/6/2016		SeqNo: 1146953		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	mb-27341	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27341	RunNo:	37106					
Prep Date:	9/6/2016	Analysis Date:	9/10/2016	SeqNo:	1150325	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	9.0	20								J
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	3.8	10								J
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	4.7	10								J
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.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	mb-27341	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27341	RunNo:	37106					
Prep Date:	9/6/2016	Analysis Date:	9/10/2016	SeqNo:	1150325	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	99		200.0		49.5	15	123			
Surr: Phenol-d5	98		200.0		49.2	4.13	124			
Surr: 2,4,6-Tribromophenol	120		200.0		60.0	18.4	134			
Surr: Nitrobenzene-d5	74		100.0		73.8	28.8	134			
Surr: 2-Fluorobiphenyl	71		100.0		71.3	35.9	125			
Surr: 4-Terphenyl-d14	41		100.0		41.5	15	146			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	Ics-27341		SampType: LCS		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSW		Batch ID: 27341		RunNo: 37106					
Prep Date:	9/6/2016		Analysis Date: 9/10/2016		SeqNo: 1150326		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	35	113			
4-Chloro-3-methylphenol	100	10	200.0	0	51.3	40.7	114			
2-Chlorophenol	100	10	200.0	0	51.0	37.6	113			
1,4-Dichlorobenzene	49	10	100.0	0	48.6	37.7	106			
2,4-Dinitrotoluene	80	10	100.0	0	79.5	37	91			
N-Nitrosodi-n-propylamine	88	10	100.0	0	88.2	45.4	105			
4-Nitrophenol	67	10	200.0	0	33.6	33.4	104			
Pentachlorophenol	98	20	200.0	0	49.0	29.5	94.9			
Phenol	76	10	200.0	0	38.1	30.6	119			
Pyrene	84	10	100.0	0	84.0	26.2	120			
1,2,4-Trichlorobenzene	56	10	100.0	0	56.2	39.9	125			
Surr: 2-Fluorophenol	83		200.0		41.5	15	123			
Surr: Phenol-d5	86		200.0		42.8	4.13	124			
Surr: 2,4,6-Tribromophenol	120		200.0		59.1	18.4	134			
Surr: Nitrobenzene-d5	81		100.0		80.8	28.8	134			
Surr: 2-Fluorobiphenyl	73		100.0		73.5	35.9	125			
Surr: 4-Terphenyl-d14	52		100.0		52.3	15	146			

Sample ID	Icscd-27341		SampType: LCSD		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02		Batch ID: 27341		RunNo: 37109					
Prep Date:	9/6/2016		Analysis Date: 9/10/2016		SeqNo: 1150577		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	97	10	100.0	0	97.4	35	113	28.5	46.7	
4-Chloro-3-methylphenol	150	10	200.0	0	74.0	40.7	114	36.2	29.4	R
2-Chlorophenol	130	10	200.0	0	64.6	37.6	113	23.5	38.7	
1,4-Dichlorobenzene	58	10	100.0	0	58.4	37.7	106	18.2	25.3	
2,4-Dinitrotoluene	100	10	100.0	0	102	37	91	25.1	34.7	S
N-Nitrosodi-n-propylamine	100	10	100.0	0	101	45.4	105	13.7	30.2	
4-Nitrophenol	110	10	200.0	0	54.0	33.4	104	46.6	42.2	R
Pentachlorophenol	120	20	200.0	0	59.3	29.5	94.9	18.9	35.5	
Phenol	100	10	200.0	0	52.1	30.6	119	31.1	25.5	R
Pyrene	93	10	100.0	0	93.0	26.2	120	10.2	27.1	
1,2,4-Trichlorobenzene	71	10	100.0	0	71.1	39.9	125	23.4	43.3	
Surr: 2-Fluorophenol	110		200.0		54.5	15	123	0	0	
Surr: Phenol-d5	110		200.0		55.7	4.13	124	0	0	
Surr: 2,4,6-Tribromophenol	150		200.0		74.5	18.4	134	0	0	
Surr: Nitrobenzene-d5	99		100.0		98.7	28.8	134	0	0	
Surr: 2-Fluorobiphenyl	86		100.0		86.5	35.9	125	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609076

18-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual/Quarterly

Sample ID	lcscd-27341	SampType:	LCSD	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	LCSS02	Batch ID:	27341	RunNo:	37109					
Prep Date:	9/6/2016	Analysis Date:	9/10/2016	SeqNo:	1150577	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	60		100.0		60.3	15	146	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: Western Refining Gallup

Work Order Number: 1609076

RcptNo: 1

Received by/date:	<u>AK</u>	<u>09/01/16</u>
Logged By:	Lindsay Mangin	9/1/2016 4:30:00 PM
Completed By:	Lindsay Mangin	9/2/2016 9:11:51 AM
Reviewed By:	<u>AK</u>	<u>09/02/16</u>

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☒	No ☐	Not Present ☐
2. Is Chain of Custody complete?	Yes ☒	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH:	<u>82</u>
Adjusted?	<u>YES</u>
Checked by:	<u>AJ</u>

Special Handling (if applicable)

16. 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:	_____		

17. Additional remarks: For metals analysis: added 0.4mL HNO₃ to -003D for acceptable pH.

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.9	Good	Yes			

9/2 @ 1200
AJ

Chain-of-Custody Record		Turn-Around Time:
Client:	Western Refining Company	X Standard ☐ Rush
GALLUP REFINERY		Project Name:
Mailing Address:		2016 ANNUAL/QUARTERLY
92 GIANT CROSSING ROAD, GALLUP, NM 87301		Project #:
Phone #: 505-722-3833		OW WELLS
email or Fax#: 505-863-0930		Project Manager:
QA/QC Package:		C. JOHNSON (cheryl.johnson@wnr.com)
☐ Standard ☐ Level 4 (Full Validation)		Sampler: C. JOHNSON
Accreditation:		On/In: ☒ Yes ☐ No
☐ NELAP ☐ Other		Sample Temperature: 39
☐ EDD (Type) _____		

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.
8/31/2016	842	AQUEOUS	OW-14	MISC	MISC	-001
8/31/2016	940	AQUEOUS	OW-29	MISC	MISC	-002
8/31/2016	1045	AQUEOUS	OW-13	MISC	MISC	-003
8/31/2016	1150	AQUEOUS	OW-30	MISC	MISC	-004
8/31/2016	1440	AQUEOUS	PW-3	MISC	MISC	-005
8/31/2016	1510	AQUEOUS	PW-4	MISC	MISC	-006
8/31/2016		AQUEOUS	TRIP BLANK			-007
8/31/2016	700	AQUEOUS	FIELD BLANK			-008

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/1/16	1430			9/1/16	2315
9/1/16	1630			09/01/16	1630

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



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

October 19, 2016

Cheryl Johnson

Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: 2016 Annual

OrderNo.: 1609504

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 7 sample(s) on 9/9/2016 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 #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-1C

Project: 2016 Annual

Collection Date: 9/8/2016 4:45:00 PM

Lab ID: 1609504-001

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 7:54:31 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 7:54:31 PM	27435
Surr: DNOP	140	0	77.1-144		%Rec	1	9/12/2016 7:54:31 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	2.4	0.050	0.10		mg/L	1	9/12/2016 6:47:07 PM	R37147
Chloride	32	1.0	10		mg/L	20	9/12/2016 7:24:21 PM	R37147
Bromide	0.12	0.044	0.10		mg/L	1	9/12/2016 6:47:07 PM	R37147
Phosphorus, Orthophosphate (As P)	0.36	0.076	0.50	JH	mg/L	1	9/12/2016 6:47:07 PM	R37147
Sulfate	240	2.8	10		mg/L	20	9/12/2016 7:24:21 PM	R37147
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/17/2016 9:00:38 PM	A37294
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.017	0.0013	0.0020		mg/L	1	9/23/2016 4:30:24 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 4:30:24 PM	A37443
Calcium	3.2	0.50	1.0		mg/L	1	9/23/2016 4:30:24 PM	A37443
Chromium	ND	0.0018	0.0060		mg/L	1	9/23/2016 4:30:24 PM	A37443
Copper	ND	0.0040	0.0060		mg/L	1	9/23/2016 4:30:24 PM	A37443
Iron	0.029	0.020	0.020		mg/L	1	9/23/2016 4:30:24 PM	A37443
Magnesium	ND	0.50	1.0		mg/L	1	9/23/2016 4:30:24 PM	A37443
Manganese	0.0077	0.00032	0.0020		mg/L	1	9/23/2016 4:30:24 PM	A37443
Potassium	0.91	0.50	1.0	J	mg/L	1	9/23/2016 4:30:24 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 4:30:24 PM	A37443
Sodium	320	2.5	5.0		mg/L	5	9/23/2016 4:36:46 PM	A37443
Zinc	ND	0.0028	0.010		mg/L	1	9/29/2016 2:02:36 PM	E37552
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.022	0.00079	0.0020		mg/L	1	10/3/2016 5:14:54 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:14:54 PM	27612
Chromium	0.0036	0.0027	0.0060	J	mg/L	1	10/3/2016 5:14:54 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:14:54 PM	27612
Iron	0.089	0.020	0.020		mg/L	1	10/3/2016 5:14:54 PM	27612
Manganese	0.014	0.00027	0.0020		mg/L	1	10/3/2016 5:14:54 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:14:54 PM	27612
Zinc	ND	0.0027	0.010		mg/L	1	10/3/2016 5:14:54 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.00032	0.00014	0.0010	J	mg/L	1	9/20/2016 4:05:14 PM	C37327
Lead	ND	0.00017	0.00050		mg/L	1	9/20/2016 4:05:14 PM	C37327
Selenium	0.00063	0.00021	0.0010	J	mg/L	1	9/20/2016 4:05:14 PM	C37327
Uranium	0.0089	0.000051	0.00050		mg/L	1	9/20/2016 4:05:14 PM	C37327

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-1C

Project: 2016 Annual

Collection Date: 9/8/2016 4:45:00 PM

Lab ID: 1609504-001

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.00044	0.00021	0.0010	J	mg/L	1	9/21/2016 5:25:09 PM	27612
Lead	ND	0.000081	0.00050		mg/L	1	9/21/2016 5:25:09 PM	27612
Selenium	0.00055	0.00019	0.0010	J	mg/L	1	9/21/2016 5:25:09 PM	27612
Uranium	0.0080	0.00017	0.00050		mg/L	1	9/21/2016 5:25:09 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00011	0.000053	0.00020	J	mg/L	1	9/20/2016 2:39:44 PM	27587
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 6:41:14 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 6:41:14 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 6:41:14 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-1C

Project: 2016 Annual

Collection Date: 9/8/2016 4:45:00 PM

Lab ID: 1609504-001

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 6:41:14 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 6:41:14 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 6:41:14 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 6:41:14 PM	R37199
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	9/14/2016 6:41:14 PM	R37199
Surr: 4-Bromofluorobenzene	88.8	0	70-130		%Rec	1	9/14/2016 6:41:14 PM	R37199
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	9/14/2016 6:41:14 PM	R37199
Surr: Toluene-d8	96.3	0	70-130		%Rec	1	9/14/2016 6:41:14 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: DJF

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: BW-1C

Project: 2016 Annual

Collection Date: 9/8/2016 4:45:00 PM

Lab ID: 1609504-001

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/14/2016 6:41:14 PM	G37199
Surr: BFB	90.0	0	70-130		%Rec	1	9/14/2016 6:41:14 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-12

Project: 2016 Annual

Collection Date: 9/8/2016 5:45:00 PM

Lab ID: 1609504-002

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 8:16:24 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 8:16:24 PM	27435
Surr: DNOP	144	0	77.1-144		%Rec	1	9/12/2016 8:16:24 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.40	0.050	0.10		mg/L	1	9/12/2016 7:36:46 PM	R37147
Chloride	19	0.051	0.50		mg/L	1	9/12/2016 7:36:46 PM	R37147
Bromide	0.14	0.044	0.10		mg/L	1	9/12/2016 7:36:46 PM	R37147
Phosphorus, Orthophosphate (As P)	0.37	0.076	0.50	JH	mg/L	1	9/12/2016 7:36:46 PM	R37147
Sulfate	160	2.8	10		mg/L	20	9/12/2016 7:49:10 PM	R37147
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/17/2016 9:13:03 PM	A37294
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.020	0.0013	0.0020		mg/L	1	9/23/2016 4:50:04 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 4:50:04 PM	A37443
Calcium	1.7	0.50	1.0		mg/L	1	9/23/2016 4:50:04 PM	A37443
Chromium	0.0036	0.0018	0.0060	J	mg/L	1	9/23/2016 4:50:04 PM	A37443
Copper	ND	0.0040	0.0060		mg/L	1	9/23/2016 4:50:04 PM	A37443
Iron	0.047	0.020	0.020		mg/L	1	9/23/2016 4:50:04 PM	A37443
Magnesium	ND	0.50	1.0		mg/L	1	9/23/2016 4:50:04 PM	A37443
Manganese	0.0027	0.00032	0.0020		mg/L	1	9/23/2016 4:50:04 PM	A37443
Potassium	1.0	0.50	1.0		mg/L	1	9/23/2016 4:50:04 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 4:50:04 PM	A37443
Sodium	260	2.5	5.0		mg/L	5	9/23/2016 4:52:08 PM	A37443
Zinc	0.0040	0.0028	0.010	J	mg/L	1	10/12/2016 11:18:29 PM	A37917
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.025	0.00079	0.0020		mg/L	1	10/3/2016 5:18:51 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:18:51 PM	27612
Chromium	0.0055	0.0027	0.0060	J	mg/L	1	10/3/2016 5:18:51 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:18:51 PM	27612
Iron	0.11	0.020	0.020		mg/L	1	10/3/2016 5:18:51 PM	27612
Manganese	0.0063	0.00027	0.0020		mg/L	1	10/3/2016 5:18:51 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:18:51 PM	27612
Zinc	ND	0.0027	0.010		mg/L	1	10/3/2016 5:18:51 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0020	0.00014	0.0010		mg/L	1	9/20/2016 4:11:21 PM	C37327
Lead	0.00021	0.00017	0.00050	J	mg/L	1	9/20/2016 4:11:21 PM	C37327
Selenium	0.00094	0.00021	0.0010	J	mg/L	1	9/20/2016 4:11:21 PM	C37327
Uranium	0.013	0.000051	0.00050		mg/L	1	9/20/2016 4:11:21 PM	C37327

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-12

Project: 2016 Annual

Collection Date: 9/8/2016 5:45:00 PM

Lab ID: 1609504-002

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0021	0.00021	0.0010		mg/L	1	9/21/2016 5:28:09 PM	27612
Lead	0.00028	0.000081	0.00050	J	mg/L	1	9/21/2016 5:28:09 PM	27612
Selenium	0.00080	0.00019	0.0010	J	mg/L	1	9/21/2016 5:28:09 PM	27612
Uranium	0.012	0.00017	0.00050		mg/L	1	9/21/2016 5:28:09 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00011	0.000053	0.00020	J	mg/L	1	9/20/2016 2:45:50 PM	27587
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 7:09:59 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 7:09:59 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 7:09:59 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-12

Project: 2016 Annual

Collection Date: 9/8/2016 5:45:00 PM

Lab ID: 1609504-002

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 7:09:59 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 7:09:59 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 7:09:59 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 7:09:59 PM	R37199
Surr: 1,2-Dichloroethane-d4	100	0	70-130		%Rec	1	9/14/2016 7:09:59 PM	R37199
Surr: 4-Bromofluorobenzene	94.1	0	70-130		%Rec	1	9/14/2016 7:09:59 PM	R37199
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	9/14/2016 7:09:59 PM	R37199
Surr: Toluene-d8	95.5	0	70-130		%Rec	1	9/14/2016 7:09:59 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: DJF

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-12

Project: 2016 Annual

Collection Date: 9/8/2016 5:45:00 PM

Lab ID: 1609504-002

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/14/2016 7:09:59 PM	G37199
Surr: BFB	94.9	0	70-130		%Rec	1	9/14/2016 7:09:59 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-52

Project: 2016 Annual

Collection Date: 9/9/2016 9:52:00 AM

Lab ID: 1609504-003

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 8:38:11 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 8:38:11 PM	27435
Surr: DNOP	141	0	77.1-144		%Rec	1	9/12/2016 8:38:11 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.38	0.050	0.10		mg/L	1	9/12/2016 8:01:34 PM	R37147
Chloride	27	1.0	10		mg/L	20	9/12/2016 8:13:59 PM	R37147
Bromide	0.19	0.044	0.10		mg/L	1	9/12/2016 8:01:34 PM	R37147
Phosphorus, Orthophosphate (As P)	0.53	0.076	0.50	H	mg/L	1	9/12/2016 8:01:34 PM	R37147
Sulfate	140	2.8	10		mg/L	20	9/12/2016 8:13:59 PM	R37147
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/17/2016 9:25:27 PM	A37294
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.028	0.0013	0.0020		mg/L	1	9/23/2016 4:53:57 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 4:53:57 PM	A37443
Calcium	4.7	0.50	1.0		mg/L	1	9/23/2016 4:53:57 PM	A37443
Chromium	ND	0.0018	0.0060		mg/L	1	9/23/2016 4:53:57 PM	A37443
Copper	ND	0.0040	0.0060		mg/L	1	9/23/2016 4:53:57 PM	A37443
Iron	0.050	0.020	0.020		mg/L	1	9/23/2016 4:53:57 PM	A37443
Magnesium	0.63	0.50	1.0	J	mg/L	1	9/23/2016 4:53:57 PM	A37443
Manganese	0.026	0.00032	0.0020		mg/L	1	9/23/2016 4:53:57 PM	A37443
Potassium	1.3	0.50	1.0		mg/L	1	9/23/2016 4:53:57 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 4:53:57 PM	A37443
Sodium	240	2.5	5.0		mg/L	5	9/23/2016 4:56:02 PM	A37443
Zinc	ND	0.0028	0.010		mg/L	1	10/12/2016 11:20:32 PM	A37917
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.032	0.00079	0.0020		mg/L	1	10/3/2016 5:22:45 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:22:45 PM	27612
Chromium	ND	0.0027	0.0060		mg/L	1	10/3/2016 5:22:45 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:22:45 PM	27612
Iron	0.15	0.020	0.020		mg/L	1	10/3/2016 5:22:45 PM	27612
Manganese	0.030	0.00027	0.0020		mg/L	1	10/3/2016 5:22:45 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:22:45 PM	27612
Zinc	ND	0.0027	0.010		mg/L	1	10/3/2016 5:22:45 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.00086	0.00014	0.0010	J	mg/L	1	9/20/2016 4:14:24 PM	C37327
Lead	ND	0.00017	0.00050		mg/L	1	9/20/2016 4:14:24 PM	C37327
Selenium	ND	0.0011	0.0050		mg/L	5	9/21/2016 8:26:12 PM	A37386
Uranium	0.011	0.000051	0.00050		mg/L	1	9/20/2016 4:14:24 PM	C37327

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-52

Project: 2016 Annual

Collection Date: 9/9/2016 9:52:00 AM

Lab ID: 1609504-003

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.00096	0.00021	0.0010	J	mg/L	1	9/21/2016 5:31:10 PM	27612
Lead	0.000086	0.000081	0.00050	J	mg/L	1	9/21/2016 5:31:10 PM	27612
Selenium	0.00084	0.00019	0.0010	J	mg/L	1	9/21/2016 5:31:10 PM	27612
Uranium	0.010	0.00017	0.00050		mg/L	1	9/21/2016 5:31:10 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000094	0.000053	0.00020	J	mg/L	1	9/20/2016 2:47:53 PM	27587
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Methyl tert-butyl ether (MTBE)	0.46	0.21	1.0	J	µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2-Dichloroethane (EDC)	0.49	0.12	1.0	J	µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 7:38:45 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 7:38:45 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 7:38:45 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-52

Project: 2016 Annual

Collection Date: 9/9/2016 9:52:00 AM

Lab ID: 1609504-003

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 7:38:45 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 7:38:45 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 7:38:45 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 7:38:45 PM	R37199
Surr: 1,2-Dichloroethane-d4	101	0	70-130		%Rec	1	9/14/2016 7:38:45 PM	R37199
Surr: 4-Bromofluorobenzene	94.1	0	70-130		%Rec	1	9/14/2016 7:38:45 PM	R37199
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	9/14/2016 7:38:45 PM	R37199
Surr: Toluene-d8	96.4	0	70-130		%Rec	1	9/14/2016 7:38:45 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: DJF

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-52

Project: 2016 Annual

Collection Date: 9/9/2016 9:52:00 AM

Lab ID: 1609504-003

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/14/2016 7:38:45 PM	G37199
Surr: BFB	94.9	0	70-130		%Rec	1	9/14/2016 7:38:45 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-50

Project: 2016 Annual

Collection Date: 9/9/2016 10:40:00 AM

Lab ID: 1609504-004

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 9:21:54 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 9:21:54 PM	27435
Surr: DNOP	142	0	77.1-144		%Rec	1	9/12/2016 9:21:54 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	0.36	0.050	0.10		mg/L	1	9/12/2016 8:51:13 PM	R37147
Chloride	31	1.0	10		mg/L	20	9/12/2016 9:03:38 PM	R37147
Bromide	0.30	0.044	0.10		mg/L	1	9/12/2016 8:51:13 PM	R37147
Phosphorus, Orthophosphate (As P)	0.64	0.076	0.50	H	mg/L	1	9/12/2016 8:51:13 PM	R37147
Sulfate	150	2.8	10		mg/L	20	9/12/2016 9:03:38 PM	R37147
Nitrate+Nitrite as N	ND	0.46	1.0		mg/L	5	9/17/2016 9:37:51 PM	A37294
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.055	0.0013	0.0020		mg/L	1	9/23/2016 5:53:12 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 5:53:12 PM	A37443
Calcium	27	0.50	1.0		mg/L	1	9/23/2016 5:53:12 PM	A37443
Chromium	ND	0.0018	0.0060		mg/L	1	9/23/2016 5:53:12 PM	A37443
Copper	0.016	0.0040	0.0060		mg/L	1	9/23/2016 5:53:12 PM	A37443
Iron	0.059	0.020	0.020		mg/L	1	9/23/2016 5:53:12 PM	A37443
Magnesium	4.5	0.50	1.0		mg/L	1	9/23/2016 5:53:12 PM	A37443
Manganese	0.11	0.00032	0.0020	*	mg/L	1	9/23/2016 5:53:12 PM	A37443
Potassium	0.62	0.50	1.0	J	mg/L	1	9/23/2016 5:53:12 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 5:53:12 PM	A37443
Sodium	260	2.5	5.0		mg/L	5	9/23/2016 5:55:17 PM	A37443
Zinc	ND	0.0028	0.010		mg/L	1	10/12/2016 11:22:36 PM	A37917
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.087	0.00079	0.0020		mg/L	1	10/3/2016 5:33:02 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:33:02 PM	27612
Chromium	ND	0.0027	0.0060		mg/L	1	10/3/2016 5:33:02 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:33:02 PM	27612
Iron	0.68	0.020	0.020	*	mg/L	1	10/3/2016 5:33:02 PM	27612
Manganese	0.12	0.00027	0.0020	*	mg/L	1	10/3/2016 5:33:02 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:33:02 PM	27612
Zinc	0.0027	0.0027	0.010	J	mg/L	1	10/3/2016 5:33:02 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0023	0.00014	0.0010		mg/L	1	9/20/2016 4:17:27 PM	C37327
Lead	ND	0.00017	0.00050		mg/L	1	9/20/2016 4:17:27 PM	C37327
Selenium	0.0014	0.0011	0.0050	J	mg/L	5	9/21/2016 8:35:25 PM	A37386
Uranium	0.012	0.000051	0.00050		mg/L	1	9/20/2016 4:17:27 PM	C37327

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-50

Project: 2016 Annual

Collection Date: 9/9/2016 10:40:00 AM

Lab ID: 1609504-004

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0021	0.00021	0.0010		mg/L	1	9/21/2016 5:40:15 PM	27612
Lead	0.00087	0.000081	0.00050		mg/L	1	9/21/2016 5:40:15 PM	27612
Selenium	0.0015	0.00094	0.0050	J	mg/L	5	9/22/2016 2:25:31 PM	27612
Uranium	0.010	0.00017	0.00050		mg/L	1	9/21/2016 5:40:15 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000096	0.000053	0.00020	J	mg/L	1	9/20/2016 2:49:56 PM	27587
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Methyl tert-butyl ether (MTBE)	2.4	0.21	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2-Dichloroethane (EDC)	0.50	0.12	1.0	J	µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 8:07:25 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 8:07:25 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 8:07:25 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-50

Project: 2016 Annual

Collection Date: 9/9/2016 10:40:00 AM

Lab ID: 1609504-004

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 8:07:25 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 8:07:25 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 8:07:25 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 8:07:25 PM	R37199
Surr: 1,2-Dichloroethane-d4	97.5	0	70-130		%Rec	1	9/14/2016 8:07:25 PM	R37199
Surr: 4-Bromofluorobenzene	94.6	0	70-130		%Rec	1	9/14/2016 8:07:25 PM	R37199
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	9/14/2016 8:07:25 PM	R37199
Surr: Toluene-d8	95.2	0	70-130		%Rec	1	9/14/2016 8:07:25 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: DJF

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: OW-50

Project: 2016 Annual

Collection Date: 9/9/2016 10:40:00 AM

Lab ID: 1609504-004

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/14/2016 8:07:25 PM	G37199
Surr: BFB	95.6	0	70-130		%Rec	1	9/14/2016 8:07:25 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: STP1-NW

Project: 2016 Annual

Collection Date: 9/9/2016 11:20:00 AM

Lab ID: 1609504-005

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 9:43:45 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 9:43:45 PM	27435
Surr: DNOP	146	0	77.1-144	S	%Rec	1	9/12/2016 9:43:45 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.25	0.50		mg/L	5	9/12/2016 9:16:03 PM	R37147
Chloride	1800	10	100		mg/L	200	9/28/2016 3:08:11 PM	R37561
Bromide	4.0	0.22	0.50		mg/L	5	9/12/2016 9:16:03 PM	R37147
Phosphorus, Orthophosphate (As P)	1.3	0.38	2.5	JH	mg/L	5	9/12/2016 9:16:03 PM	R37147
Sulfate	150	0.71	2.5		mg/L	5	9/12/2016 9:16:03 PM	R37147
Nitrate+Nitrite as N	26	0.92	2.0	*	mg/L	10	9/28/2016 3:33:01 PM	R37561
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.17	0.0013	0.0020		mg/L	1	9/23/2016 4:57:55 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 4:57:55 PM	A37443
Calcium	110	2.5	5.0		mg/L	5	9/23/2016 4:59:53 PM	A37443
Chromium	ND	0.0018	0.0060		mg/L	1	9/23/2016 4:57:55 PM	A37443
Copper	ND	0.0040	0.0060		mg/L	1	9/23/2016 4:57:55 PM	A37443
Iron	0.037	0.020	0.020		mg/L	1	9/23/2016 4:57:55 PM	A37443
Magnesium	15	0.50	1.0		mg/L	1	9/23/2016 4:57:55 PM	A37443
Manganese	0.00053	0.00032	0.0020	J	mg/L	1	9/23/2016 4:57:55 PM	A37443
Potassium	6.6	0.50	1.0		mg/L	1	9/23/2016 4:57:55 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 4:57:55 PM	A37443
Sodium	1400	10	20		mg/L	20	10/3/2016 3:12:59 PM	B37643
Zinc	0.039	0.0028	0.010		mg/L	1	9/29/2016 2:08:36 PM	E37552
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.18	0.00079	0.0020		mg/L	1	10/3/2016 5:37:03 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:37:03 PM	27612
Chromium	ND	0.0027	0.0060		mg/L	1	10/3/2016 5:37:03 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:37:03 PM	27612
Iron	1.4	0.10	0.10	*	mg/L	5	10/3/2016 5:38:55 PM	27612
Manganese	0.029	0.00027	0.0020		mg/L	1	10/3/2016 5:37:03 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:37:03 PM	27612
Zinc	0.026	0.0027	0.010		mg/L	1	10/3/2016 5:37:03 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0084	0.0069	0.050	J	mg/L	50	9/21/2016 8:41:32 PM	A37386
Lead	ND	0.00017	0.00050		mg/L	1	9/20/2016 4:20:31 PM	C37327
Selenium	0.026	0.0011	0.0050		mg/L	5	9/21/2016 8:38:28 PM	A37386
Uranium	0.023	0.00026	0.0025		mg/L	5	9/21/2016 8:38:28 PM	A37386

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: STP1-NW

Project: 2016 Annual

Collection Date: 9/9/2016 11:20:00 AM

Lab ID: 1609504-005

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.0070	0.0021	0.010	J	mg/L	10	9/22/2016 2:28:31 PM	27612
Lead	0.0013	0.000081	0.00050		mg/L	1	9/21/2016 5:43:15 PM	27612
Selenium	0.025	0.0094	0.050	J	mg/L	50	9/22/2016 2:31:32 PM	27612
Uranium	0.023	0.00017	0.00050		mg/L	1	9/21/2016 5:43:15 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.00010	0.000053	0.00020	J	mg/L	1	9/20/2016 2:52:00 PM	27587
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Methyl tert-butyl ether (MTBE)	0.30	0.21	1.0	J	µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Acetone	11	4.9	10		µg/L	1	9/14/2016 8:36:16 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 8:36:16 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 8:36:16 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: STP1-NW

Project: 2016 Annual

Collection Date: 9/9/2016 11:20:00 AM

Lab ID: 1609504-005

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 8:36:16 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 8:36:16 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 8:36:16 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 8:36:16 PM	R37199
Surr: 1,2-Dichloroethane-d4	102	0	70-130		%Rec	1	9/14/2016 8:36:16 PM	R37199
Surr: 4-Bromofluorobenzene	94.1	0	70-130		%Rec	1	9/14/2016 8:36:16 PM	R37199
Surr: Dibromofluoromethane	111	0	70-130		%Rec	1	9/14/2016 8:36:16 PM	R37199
Surr: Toluene-d8	96.3	0	70-130		%Rec	1	9/14/2016 8:36:16 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **DJF**

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: STP1-NW

Project: 2016 Annual

Collection Date: 9/9/2016 11:20:00 AM

Lab ID: 1609504-005

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/14/2016 8:36:16 PM	G37199
Surr: BFB	95.3	0	70-130		%Rec	1	9/14/2016 8:36:16 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015M/D: DIESEL RANGE							Analyst: TOM	
Diesel Range Organics (DRO)	ND	0.69	1.0		mg/L	1	9/12/2016 10:05:32 PM	27435
Motor Oil Range Organics (MRO)	ND	5.0	5.0		mg/L	1	9/12/2016 10:05:32 PM	27435
Surr: DNOP	145	0	77.1-144	S	%Rec	1	9/12/2016 10:05:32 PM	27435
EPA METHOD 300.0: ANIONS							Analyst: LGT	
Fluoride	ND	0.050	0.10		mg/L	1	9/13/2016 2:13:53 AM	R37147
Chloride	2500	10	100		mg/L	200	9/28/2016 3:20:36 PM	R37561
Bromide	2.9	0.87	2.0		mg/L	20	9/13/2016 2:26:18 AM	R37147
Phosphorus, Orthophosphate (As P)	ND	1.5	10	H	mg/L	20	9/13/2016 2:26:18 AM	R37147
Sulfate	1300	28	100		mg/L	200	9/28/2016 3:20:36 PM	R37561
Nitrate+Nitrite as N	ND	0.92	2.0		mg/L	10	9/17/2016 10:39:55 PM	A37294
EPA METHOD 200.7: DISSOLVED METALS							Analyst: MED	
Barium	0.018	0.0013	0.0020		mg/L	1	9/23/2016 5:01:59 PM	A37443
Cadmium	ND	0.00075	0.0020		mg/L	1	9/23/2016 5:01:59 PM	A37443
Calcium	320	2.5	5.0		mg/L	5	9/23/2016 5:03:56 PM	A37443
Chromium	ND	0.0018	0.0060		mg/L	1	9/23/2016 5:01:59 PM	A37443
Copper	ND	0.0040	0.0060		mg/L	1	9/23/2016 5:01:59 PM	A37443
Iron	0.032	0.020	0.020		mg/L	1	9/23/2016 5:01:59 PM	A37443
Magnesium	96	0.50	1.0		mg/L	1	9/23/2016 5:01:59 PM	A37443
Manganese	0.24	0.00032	0.0020	*	mg/L	1	9/23/2016 5:01:59 PM	A37443
Potassium	1.9	0.50	1.0		mg/L	1	9/23/2016 5:01:59 PM	A37443
Silver	ND	0.0028	0.0050		mg/L	1	9/23/2016 5:01:59 PM	A37443
Sodium	2300	25	50		mg/L	50	9/29/2016 2:16:39 PM	E37552
Zinc	0.0050	0.0028	0.010	J	mg/L	1	10/12/2016 11:24:40 PM	A37917
EPA METHOD 200.7: TOTAL METALS							Analyst: ELS	
Barium	0.042	0.00079	0.0020		mg/L	1	10/3/2016 5:40:58 PM	27612
Cadmium	ND	0.0015	0.0020		mg/L	1	10/3/2016 5:40:58 PM	27612
Chromium	0.13	0.0027	0.0060	*	mg/L	1	10/3/2016 5:40:58 PM	27612
Copper	ND	0.0030	0.0060		mg/L	1	10/3/2016 5:40:58 PM	27612
Iron	1.4	0.10	0.10	*	mg/L	5	10/3/2016 5:42:49 PM	27612
Manganese	0.30	0.00027	0.0020	*	mg/L	1	10/3/2016 5:40:58 PM	27612
Silver	ND	0.0015	0.0050		mg/L	1	10/3/2016 5:40:58 PM	27612
Zinc	0.011	0.0027	0.010		mg/L	1	10/3/2016 5:40:58 PM	27612
EPA 200.8: DISSOLVED METALS							Analyst: JLF	
Arsenic	0.0066	0.0014	0.010	J	mg/L	10	9/21/2016 9:48:53 PM	B37386
Lead	ND	0.00017	0.00050		mg/L	1	9/20/2016 4:23:33 PM	C37327
Selenium	0.015	0.011	0.050	J	mg/L	50	9/21/2016 9:51:56 PM	B37386
Uranium	0.11	0.00051	0.0050	*	mg/L	10	9/21/2016 9:48:53 PM	B37386

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
200.8 ICPMS METALS:TOTAL							Analyst: JLF	
Arsenic	0.011	0.011	0.050	J*	mg/L	50	9/22/2016 2:37:33 PM	27612
Lead	0.0013	0.000081	0.00050		mg/L	1	9/21/2016 5:46:16 PM	27612
Selenium	0.016	0.0094	0.050	J	mg/L	50	9/22/2016 2:37:33 PM	27612
Uranium	0.11	0.00087	0.0025	*	mg/L	5	9/22/2016 2:34:33 PM	27612
EPA METHOD 245.1: MERCURY							Analyst: pmf	
Mercury	0.000096	0.000053	0.00020	J	mg/L	1	9/20/2016 2:54:05 PM	27587
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
Acenaphthene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Acenaphthylene	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Aniline	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Anthracene	ND	2.5	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Azobenzene	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benz(a)anthracene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benzo(a)pyrene	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benzo(b)fluoranthene	ND	2.9	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benzo(g,h,i)perylene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benzo(k)fluoranthene	ND	3.0	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Benzoic acid	6.9	2.6	20	J	µg/L	1	9/17/2016 1:42:57 PM	27489
Benzyl alcohol	ND	3.0	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Bis(2-chloroethoxy)methane	ND	2.8	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Bis(2-chloroethyl)ether	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Bis(2-chloroisopropyl)ether	ND	1.9	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Bis(2-ethylhexyl)phthalate	7.0	2.6	10	J	µg/L	1	9/17/2016 1:42:57 PM	27489
4-Bromophenyl phenyl ether	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Butyl benzyl phthalate	ND	2.5	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Carbazole	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4-Chloro-3-methylphenol	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4-Chloroaniline	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Chloronaphthalene	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Chlorophenol	ND	2.2	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4-Chlorophenyl phenyl ether	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Chrysene	ND	2.8	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Di-n-butyl phthalate	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Di-n-octyl phthalate	3.3	2.0	10	J	µg/L	1	9/17/2016 1:42:57 PM	27489
Dibenz(a,h)anthracene	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Dibenzofuran	ND	2.5	10		µg/L	1	9/17/2016 1:42:57 PM	27489
1,2-Dichlorobenzene	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
1,3-Dichlorobenzene	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
1,4-Dichlorobenzene	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
3,3'-Dichlorobenzidine	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Diethyl phthalate	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Dimethyl phthalate	3.0	2.4	10	J	µg/L	1	9/17/2016 1:42:57 PM	27489
2,4-Dichlorophenol	ND	2.3	20		µg/L	1	9/17/2016 1:42:57 PM	27489
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4,6-Dinitro-2-methylphenol	ND	1.8	20		µg/L	1	9/17/2016 1:42:57 PM	27489
2,4-Dinitrophenol	ND	2.8	20		µg/L	1	9/17/2016 1:42:57 PM	27489
2,4-Dinitrotoluene	ND	3.1	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2,6-Dinitrotoluene	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Fluoranthene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Fluorene	ND	2.7	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Hexachlorobenzene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Hexachlorobutadiene	ND	2.2	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Hexachlorocyclopentadiene	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Hexachloroethane	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Indeno(1,2,3-cd)pyrene	ND	3.0	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Isophorone	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
1-Methylnaphthalene	ND	2.9	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Methylnaphthalene	ND	2.9	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Methylphenol	ND	2.5	10		µg/L	1	9/17/2016 1:42:57 PM	27489
3+4-Methylphenol	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
N-Nitrosodi-n-propylamine	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
N-Nitrosodimethylamine	ND	2.2	10		µg/L	1	9/17/2016 1:42:57 PM	27489
N-Nitrosodiphenylamine	ND	2.3	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Naphthalene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Nitroaniline	ND	2.8	10		µg/L	1	9/17/2016 1:42:57 PM	27489
3-Nitroaniline	ND	2.9	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4-Nitroaniline	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Nitrobenzene	ND	2.8	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2-Nitrophenol	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
4-Nitrophenol	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Pentachlorophenol	ND	2.3	20		µg/L	1	9/17/2016 1:42:57 PM	27489
Phenanthrene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Phenol	ND	2.0	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Pyrene	4.6	3.1	10	J	µg/L	1	9/17/2016 1:42:57 PM	27489
Pyridine	ND	2.2	10		µg/L	1	9/17/2016 1:42:57 PM	27489
1,2,4-Trichlorobenzene	ND	2.6	10		µg/L	1	9/17/2016 1:42:57 PM	27489
2,4,5-Trichlorophenol	ND	2.2	10		µg/L	1	9/17/2016 1:42:57 PM	27489

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1609504

Date Reported: 10/19/2016

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8270C: SEMIVOLATILES							Analyst: DAM	
2,4,6-Trichlorophenol	ND	2.4	10		µg/L	1	9/17/2016 1:42:57 PM	27489
Surr: 2-Fluorophenol	22.6	0	15-123		%Rec	1	9/17/2016 1:42:57 PM	27489
Surr: Phenol-d5	20.4	0	15-124		%Rec	1	9/17/2016 1:42:57 PM	27489
Surr: 2,4,6-Tribromophenol	44.2	0	18.4-134		%Rec	1	9/17/2016 1:42:57 PM	27489
Surr: Nitrobenzene-d5	64.7	0	28.8-134		%Rec	1	9/17/2016 1:42:57 PM	27489
Surr: 2-Fluorobiphenyl	51.8	0	35.9-125		%Rec	1	9/17/2016 1:42:57 PM	27489
Surr: 4-Terphenyl-d14	28.7	0	15-146		%Rec	1	9/17/2016 1:42:57 PM	27489
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Methyl tert-butyl ether (MTBE)	13	0.21	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 9:05:05 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 9:05:05 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 9:05:05 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 9:05:05 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 9:05:05 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 9:05:05 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 9:05:05 PM	R37199
Surr: 1,2-Dichloroethane-d4	104	0	70-130		%Rec	1	9/14/2016 9:05:05 PM	R37199
Surr: 4-Bromofluorobenzene	103	0	70-130		%Rec	1	9/14/2016 9:05:05 PM	R37199
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	9/14/2016 9:05:05 PM	R37199
Surr: Toluene-d8	123	0	70-130		%Rec	1	9/14/2016 9:05:05 PM	R37199

EPA METHOD 8015D: GASOLINE RANGE

Analyst: **DJF**

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: SMW-2

Project: 2016 Annual

Collection Date: 9/9/2016 12:45:00 PM

Lab ID: 1609504-006

Matrix: AQUEOUS

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	1.0	0.015	0.050		mg/L	1	9/14/2016 9:05:05 PM	G37199
Surr: BFB	135	0	70-130	S	%Rec	1	9/14/2016 9:05:05 PM	G37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: TRIP BLANK

Project: 2016 Annual

Collection Date:

Lab ID: 1609504-007

Matrix: TRIP BLANK

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
Benzene	ND	0.096	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Toluene	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Ethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Methyl tert-butyl ether (MTBE)	ND	0.21	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2,4-Trimethylbenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,3,5-Trimethylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2-Dichloroethane (EDC)	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2-Dibromoethane (EDB)	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Naphthalene	ND	0.093	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1-Methylnaphthalene	ND	0.20	4.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
2-Methylnaphthalene	ND	0.16	4.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Acetone	ND	4.9	10		µg/L	1	9/14/2016 9:33:52 PM	R37199
Bromobenzene	ND	0.098	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Bromodichloromethane	ND	0.14	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Bromoform	ND	0.10	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Bromomethane	ND	0.78	3.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
2-Butanone	ND	0.74	10		µg/L	1	9/14/2016 9:33:52 PM	R37199
Carbon disulfide	ND	0.60	10		µg/L	1	9/14/2016 9:33:52 PM	R37199
Carbon Tetrachloride	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Chlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Chloroethane	ND	0.19	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Chloroform	ND	0.089	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Chloromethane	ND	0.21	3.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
2-Chlorotoluene	ND	0.40	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
4-Chlorotoluene	ND	0.13	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
cis-1,2-DCE	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
cis-1,3-Dichloropropene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2-Dibromo-3-chloropropane	ND	0.23	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Dibromochloromethane	ND	0.087	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Dibromomethane	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2-Dichlorobenzene	ND	0.40	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,3-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,4-Dichlorobenzene	ND	0.14	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Dichlorodifluoromethane	ND	0.36	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1-Dichloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1-Dichloroethene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2-Dichloropropane	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,3-Dichloropropane	ND	0.16	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
2,2-Dichloropropane	ND	0.17	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199

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
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1609504**

Date Reported: **10/19/2016**

CLIENT: Western Refining Southwest, Gallup

Client Sample ID: TRIP BLANK

Project: 2016 Annual

Collection Date:

Lab ID: 1609504-007

Matrix: TRIP BLANK

Received Date: 9/9/2016 4:55:00 PM

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 8260B: VOLATILES							Analyst: DJF	
1,1-Dichloropropene	ND	0.13	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Hexachlorobutadiene	ND	0.20	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
2-Hexanone	ND	0.84	10		µg/L	1	9/14/2016 9:33:52 PM	R37199
Isopropylbenzene	ND	0.10	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
4-Isopropyltoluene	ND	0.14	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
4-Methyl-2-pentanone	ND	0.43	10		µg/L	1	9/14/2016 9:33:52 PM	R37199
Methylene Chloride	ND	0.19	3.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
n-Butylbenzene	ND	0.16	3.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
n-Propylbenzene	ND	0.13	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
sec-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Styrene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
tert-Butylbenzene	ND	0.12	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1,1,2-Tetrachloroethane	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1,2,2-Tetrachloroethane	ND	0.13	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
trans-1,2-DCE	ND	0.40	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
trans-1,3-Dichloropropene	ND	0.10	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2,3-Trichlorobenzene	ND	0.11	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2,4-Trichlorobenzene	ND	0.13	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1,1-Trichloroethane	ND	0.091	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,1,2-Trichloroethane	ND	0.13	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Trichloroethene (TCE)	ND	0.18	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Trichlorofluoromethane	ND	0.20	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
1,2,3-Trichloropropane	ND	0.20	2.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Vinyl chloride	ND	0.20	1.0		µg/L	1	9/14/2016 9:33:52 PM	R37199
Xylenes, Total	ND	0.37	1.5		µg/L	1	9/14/2016 9:33:52 PM	R37199
Surr: 1,2-Dichloroethane-d4	103	0	70-130		%Rec	1	9/14/2016 9:33:52 PM	R37199
Surr: 4-Bromofluorobenzene	93.5	0	70-130		%Rec	1	9/14/2016 9:33:52 PM	R37199
Surr: Dibromofluoromethane	109	0	70-130		%Rec	1	9/14/2016 9:33:52 PM	R37199
Surr: Toluene-d8	96.5	0	70-130		%Rec	1	9/14/2016 9:33:52 PM	R37199
EPA METHOD 8015D: GASOLINE RANGE							Analyst: DJF	
Gasoline Range Organics (GRO)	ND	0.015	0.050		mg/L	1	9/15/2016 8:34:11 PM	G37240
Surr: BFB	94.4	0	70-130		%Rec	1	9/15/2016 8:34:11 PM	G37240

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
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

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

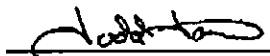
Batch #: 160916061
Project Name: 1609504

Analytical Results Report

Sample Number	160916061-001	Sampling Date	9/9/2016	Date/Time Received	9/16/2016 11:50 AM
Client Sample ID	1609504-006G / SMW-2	Sampling Time	12:45 PM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	0.0410	mg/L	0.01	9/20/2016	MER	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.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID MB-A	SampType: MBLK		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: PBW	Batch ID: A37443		RunNo: 37443							
Prep Date:	Analysis Date: 9/23/2016		SeqNo: 1164050		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID LCS-A	SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: LCSW	Batch ID: A37443		RunNo: 37443							
Prep Date:	Analysis Date: 9/23/2016		SeqNo: 1164051		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	95.8	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.1	85	115			
Calcium	54	1.0	50.00	0	109	85	115			
Chromium	0.48	0.0060	0.5000	0	95.4	85	115			
Copper	0.47	0.0060	0.5000	0	93.6	85	115			
Iron	0.48	0.020	0.5000	0	96.4	85	115			
Magnesium	55	1.0	50.00	0	109	85	115			
Manganese	0.47	0.0020	0.5000	0	93.4	85	115			
Potassium	53	1.0	50.00	0	105	85	115			
Silver	0.096	0.0050	0.1000	0	96.1	85	115			
Sodium	54	1.0	50.00	0	108	85	115			

Sample ID LLCS-A	SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals							
Client ID: BatchQC	Batch ID: A37443		RunNo: 37443							
Prep Date:	Analysis Date: 9/23/2016		SeqNo: 1164052		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.0025	0.0020	0.002000	0	125	50	150			
Cadmium	0.0023	0.0020	0.002000	0	116	50	150			
Calcium	0.59	1.0	0.5000	0	118	50	150			J
Chromium	0.0064	0.0060	0.006000	0	108	50	150			
Copper	0.0065	0.0060	0.006000	0	108	50	150			
Magnesium	0.55	1.0	0.5000	0	111	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A37443		RunNo: 37443					
Prep Date:			Analysis Date: 9/23/2016		SeqNo: 1164052		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.0024	0.0020	0.002000	0	123	50	150			
Potassium	0.54	1.0	0.5000	0	109	50	150			J
Silver	0.0053	0.0050	0.005000	0	106	50	150			
Sodium	0.56	1.0	0.5000	0	111	50	150			J

Sample ID	LLLCS-A		SampType: LCSLL		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC		Batch ID: A37443		RunNo: 37443					
Prep Date:			Analysis Date: 9/23/2016		SeqNo: 1164069		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.022	0.020	0.02000	0	112	50	150			

Sample ID	1609504-001EMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BW-1C		Batch ID: A37443		RunNo: 37443					
Prep Date:			Analysis Date: 9/23/2016		SeqNo: 1164216		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.53	0.0020	0.5000	0.01735	103	70	130			
Cadmium	0.52	0.0020	0.5000	0	103	70	130			
Calcium	56	1.0	50.00	3.191	105	70	130			
Chromium	0.50	0.0060	0.5000	0	101	70	130			
Copper	0.55	0.0060	0.5000	0	110	70	130			
Iron	0.52	0.020	0.5000	0.02892	98.5	70	130			
Magnesium	54	1.0	50.00	0	107	70	130			
Manganese	0.51	0.0020	0.5000	0.007690	101	70	130			
Potassium	53	1.0	50.00	0.9054	105	70	130			
Silver	0.094	0.0050	0.1000	0	94.0	70	130			

Sample ID	1609504-001EMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BW-1C		Batch ID: A37443		RunNo: 37443					
Prep Date:			Analysis Date: 9/23/2016		SeqNo: 1164217		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0.01735	98.1	70	130	4.40	20	
Cadmium	0.50	0.0020	0.5000	0	99.5	70	130	3.53	20	
Calcium	53	1.0	50.00	3.191	99.2	70	130	5.48	20	
Chromium	0.49	0.0060	0.5000	0	97.4	70	130	3.23	20	
Copper	0.52	0.0060	0.5000	0	104	70	130	5.45	20	
Iron	0.50	0.020	0.5000	0.02892	95.0	70	130	3.41	20	
Magnesium	50	1.0	50.00	0	101	70	130	6.01	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	1609504-001EMSD		SampType: MSD		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BW-1C		Batch ID: A37443		RunNo: 37443					
Prep Date:			Analysis Date: 9/23/2016		SeqNo: 1164217		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	0.49	0.0020	0.5000	0.007690	96.4	70	130	4.44	20	
Potassium	50	1.0	50.00	0.9054	98.8	70	130	5.90	20	
Silver	0.094	0.0050	0.1000	0	94.0	70	130	0.0532	20	

Sample ID	MB-E	SampType:	MBLK		TestCode:	EPA Method 200.7: Dissolved Metals				
Client ID:	PBW	Batch ID:	E37552		RunNo:	37552				
Prep Date:		Analysis Date:	9/29/2016		SeqNo:	1169123	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS-E		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: E37552		RunNo: 37552					
Prep Date:			Analysis Date: 9/29/2016		SeqNo: 1169127		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	49	1.0	50.00	0	98.6	85	115			
Zinc	0.49	0.010	0.5000	0	97.6	85	115			

Sample ID	LLCS-E	SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BatchQC	Batch ID: E37552			RunNo: 37552					
Prep Date:	Analysis Date: 9/29/2016			SeqNo: 1169128		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	0.50	1.0	0.5000	0	100	50	150			J
Zinc	0.0050	0.010	0.005000	0	101	50	150			J

Sample ID	1609504-001EMS		SampType: MS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	BW-1C		Batch ID: E37552		RunNo: 37552					
Prep Date:			Analysis Date: 9/29/2016		SeqNo: 1169186		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.48	0.010	0.5000	0	95.8	70	130			

Sample ID	1609504-001EMSD			SampType:	MSD			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	BW-1C			Batch ID:	E37552			RunNo:	37552		
Prep Date:				Analysis Date:	9/29/2016			SeqNo:	1169187	Units:	mg/L
Analyte	Result	POL	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	1609504-001EMSD			SampType:	MSD			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	BW-1C			Batch ID:	E37552			RunNo:	37552		
Prep Date:				Analysis Date:	9/29/2016			SeqNo:	1169187	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Zinc	0.48	0.010	0.5000	0	95.4	70	130	0.398	20		

Sample ID	MB-B			SampType:	MBLK			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	PBW			Batch ID:	B37643			RunNo:	37643		
Prep Date:				Analysis Date:	10/3/2016			SeqNo:	1171590	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sodium	ND	1.0									

Sample ID	LCS-B			SampType:	LCS			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	LCSW			Batch ID:	B37643			RunNo:	37643		
Prep Date:				Analysis Date:	10/3/2016			SeqNo:	1171591	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sodium	49	1.0	50.00	0	97.1	85	115				

Sample ID	LLCS-B			SampType:	LCSLL			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	BatchQC			Batch ID:	B37643			RunNo:	37643		
Prep Date:				Analysis Date:	10/3/2016			SeqNo:	1171592	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sodium	0.51	1.0	0.5000	0	102	50	150			J	

Sample ID	MB-A			SampType:	MBLK			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	PBW			Batch ID:	A37917			RunNo:	37917		
Prep Date:				Analysis Date:	10/12/2016			SeqNo:	1181515	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Zinc	ND	0.010									

Sample ID	LLCS-A			SampType:	LCSLL			TestCode:	EPA Method 200.7: Dissolved Metals		
Client ID:	BatchQC			Batch ID:	A37917			RunNo:	37917		
Prep Date:				Analysis Date:	10/12/2016			SeqNo:	1181516	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Zinc	0.0050	0.010	0.005000	0	100	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	LCS-A		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: A37917		RunNo: 37917					
Prep Date:			Analysis Date: 10/12/2016		SeqNo: 1181517		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	0.46	0.010	0.5000	0	93.0	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	MB-27612		SampType: MBLK		TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW		Batch ID: 27612		RunNo: 37369					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161349		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-27612		SampType: LCS		TestCode: EPA Method 200.7: Total Metals					
Client ID:	LCSW		Batch ID: 27612		RunNo: 37369					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161350		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	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.3	85	115			
Chromium	0.47	0.0060	0.5000	0	94.2	85	115			
Copper	0.47	0.0060	0.5000	0	93.1	85	115			
Iron	0.47	0.020	0.5000	0	94.2	85	115			
Manganese	0.46	0.0020	0.5000	0	93.0	85	115			
Silver	0.098	0.0050	0.1000	0	97.7	85	115			
Zinc	0.47	0.010	0.5000	0	93.3	85	115			

Sample ID	LLLCS-27612		SampType: LCSLL		TestCode: EPA Method 200.7: Total Metals					
Client ID:	BatchQC		Batch ID: 27612		RunNo: 37369					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161351		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0026	0.0020	0.002000	0	130	50	150			
Cadmium	0.0018	0.0020	0.002000	0	90.5	50	150			J
Chromium	0.0059	0.0060	0.006000	0	97.7	50	150			J
Copper	0.0054	0.0060	0.006000	0	90.7	50	150			J
Iron	0.021	0.020	0.02000	0	105	50	150			
Manganese	0.0020	0.0020	0.002000	0	99.5	50	150			J
Silver	0.0047	0.0050	0.005000	0	94.4	50	150			J
Zinc	0.0051	0.010	0.005000	0	102	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	1609446-02AMSDLL				SampType:	MSD		TestCode:	EPA 200.8: Dissolved Metals		
Client ID:	BatchQC				Batch ID:	C37327		RunNo:	37327		
Prep Date:					Analysis Date:	9/20/2016		SeqNo:	1160730	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.025	0.0010	0.02500	0.0001542	98.6	70	130	3.20	20		
Lead	0.013	0.00050	0.01250	0.0005561	99.9	70	130	0.672	20		
Selenium	0.026	0.0010	0.02500	0.001529	99.7	70	130	5.30	20		
Uranium	0.015	0.00050	0.01250	0.001591	103	70	130	0.746	20		

Sample ID	1609504-001EMSL				SampType:	MS		TestCode:	EPA 200.8: Dissolved Metals		
Client ID:	BW-1C				Batch ID:	C37327		RunNo:	37327		
Prep Date:					Analysis Date:	9/20/2016		SeqNo:	1160744	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.025	0.0010	0.02500	0.0003210	97.2	70	130				
Lead	0.013	0.00050	0.01250	0	103	70	130				
Selenium	0.024	0.0010	0.02500	0.0006298	94.8	70	130				
Uranium	0.023	0.00050	0.01250	0.008850	109	70	130				

Sample ID	LCS				SampType:	LCS		TestCode:	EPA 200.8: Dissolved Metals		
Client ID:	LCSW				Batch ID:	C37327		RunNo:	37327		
Prep Date:					Analysis Date:	9/20/2016		SeqNo:	1160759	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.023	0.0010	0.02500	0	91.8	85	115				
Lead	0.012	0.00050	0.01250	0	95.4	85	115				
Selenium	0.023	0.0010	0.02500	0	92.7	85	115				
Uranium	0.012	0.00050	0.01250	0	96.1	85	115				

Sample ID	LLCS				SampType:	LCSLL		TestCode:	EPA 200.8: Dissolved Metals		
Client ID:	BatchQC				Batch ID:	C37327		RunNo:	37327		
Prep Date:					Analysis Date:	9/20/2016		SeqNo:	1160761	Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.00097	0.0010	0.001000	0	96.9	50	150			J	
Lead	0.00051	0.00050	0.0005000	0	102	50	150				
Selenium	0.00094	0.0010	0.001000	0	93.5	50	150			J	
Uranium	0.00049	0.00050	0.0005000	0	98.8	50	150			J	

Sample ID	MB				SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals		
Client ID:	PBW				Batch ID:	C37327		RunNo:	37327		
Prep Date:					Analysis Date:	9/20/2016		SeqNo:	1160763	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
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals							
Client ID: PBW	Batch ID: C37327		RunNo: 37327							
Prep Date:	Analysis Date: 9/20/2016		SeqNo: 1160763		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								
Uranium	ND	0.00050								

Sample ID LCS	SampType: LCS		TestCode: EPA 200.8: Dissolved Metals							
Client ID: LCSW	Batch ID: A37386		RunNo: 37386							
Prep Date:	Analysis Date: 9/21/2016		SeqNo: 1162017		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	97.3	85	115			
Selenium	0.024	0.0010	0.02500	0	97.7	85	115			
Uranium	0.012	0.00050	0.01250	0	98.7	85	115			

Sample ID LCS	SampType: LCS		TestCode: EPA 200.8: Dissolved Metals							
Client ID: LCSW	Batch ID: B37386		RunNo: 37386							
Prep Date:	Analysis Date: 9/21/2016		SeqNo: 1162018		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	93.8	85	115			
Selenium	0.025	0.0010	0.02500	0	99.9	85	115			
Uranium	0.013	0.00050	0.01250	0	103	85	115			

Sample ID LLCS	SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals							
Client ID: BatchQC	Batch ID: A37386		RunNo: 37386							
Prep Date:	Analysis Date: 9/21/2016		SeqNo: 1162020		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00098	0.0010	0.001000	0	98.4	50	150			J
Selenium	0.0010	0.0010	0.001000	0	102	50	150			
Uranium	0.00049	0.00050	0.0005000	0	97.6	50	150			J

Sample ID LLCS	SampType: LCSLL		TestCode: EPA 200.8: Dissolved Metals							
Client ID: BatchQC	Batch ID: B37386		RunNo: 37386							
Prep Date:	Analysis Date: 9/21/2016		SeqNo: 1162021		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.00098	0.0010	0.001000	0	98.2	50	150			J
Selenium	0.00098	0.0010	0.001000	0	97.5	50	150			J
Uranium	0.00051	0.00050	0.0005000	0	101	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	A37386	RunNo:	37386					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1162022	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	B37386	RunNo:	37386					
Prep Date:		Analysis Date:	9/21/2016	SeqNo:	1162023	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	MB-27612		SampType: MBLK		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	PBW		Batch ID: 27612		RunNo: 37385					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161947		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								
Uranium	ND	0.00050								

Sample ID	MSLCS-27612		SampType: LCS		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	LCSW		Batch ID: 27612		RunNo: 37385					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161950		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.023	0.0010	0.02500	0	92.8	85	115			
Lead	0.012	0.00050	0.01250	0	95.2	85	115			
Selenium	0.024	0.0010	0.02500	0	94.1	85	115			
Uranium	0.012	0.00050	0.01250	0	98.4	85	115			

Sample ID	MSLLCS-27612		SampType: LCSLL		TestCode: 200.8 ICPMS Metals:Total					
Client ID:	BatchQC		Batch ID: 27612		RunNo: 37385					
Prep Date:	9/20/2016		Analysis Date: 9/21/2016		SeqNo: 1161953		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	113	50	150			
Lead	0.00049	0.00050	0.0005000	0	98.4	50	150			J
Selenium	0.00094	0.0010	0.001000	0	94.4	50	150			J
Uranium	0.00050	0.00050	0.0005000	0	99.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	MB-27587		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 27587		RunNo: 37346					
Prep Date:	9/19/2016		Analysis Date: 9/20/2016		SeqNo: 1160133		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	0.000093	0.00020								J

Sample ID	LCS-27587		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 27587		RunNo: 37346					
Prep Date:	9/19/2016		Analysis Date: 9/20/2016		SeqNo: 1160134		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	97.0	80	120			

Sample ID	1609504-001FMS		SampType: MS		TestCode: EPA Method 245.1: Mercury					
Client ID:	BW-1C		Batch ID: 27587		RunNo: 37346					
Prep Date:	9/19/2016		Analysis Date: 9/20/2016		SeqNo: 1160138		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0058	0.00020	0.005000	0.0001100	113	75	125			

Sample ID	1609504-001FMSD			SampType:	MSD		TestCode:	EPA Method 245.1: Mercury			
Client ID:	BW-1C			Batch ID:	27587		RunNo:	37346			
Prep Date:	9/19/2016			Analysis Date:	9/20/2016		SeqNo:	1160139		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0057	0.00020	0.005000	0.0001100	111	75	125	1.94	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	R37147		RunNo:	37147			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1152031	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								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 300.0: Anions			
Client ID:	LCSW		Batch ID:	R37147		RunNo:	37147			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1152032	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	104	90	110			
Chloride	4.7	0.50	5.000	0	94.6	90	110			
Bromide	2.4	0.10	2.500	0	96.0	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	95.8	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			

Sample ID	1609504-001DMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions			
Client ID:	BW-1C		Batch ID:	R37147		RunNo:	37147			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1152034	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.7	0.10	0.5000	2.367	76.6	74.5	121			
Bromide	2.4	0.10	2.500	0.1209	89.6	74.6	115			

Sample ID	1609504-001DMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	BW-1C		Batch ID:	R37147		RunNo:	37147			
Prep Date:			Analysis Date:	9/12/2016		SeqNo:	1152035	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.7	0.10	0.5000	2.367	76.6	74.5	121	0	20	
Bromide	2.4	0.10	2.500	0.1209	89.5	74.6	115	0.0933	20	

Sample ID	MB		SampType:	mblk		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	A37294		RunNo:	37294			
Prep Date:			Analysis Date:	9/17/2016		SeqNo:	1157982	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	LCS		SampType: lcs			TestCode: EPA Method 300.0: Anions				
Client ID:	LCSW		Batch ID: A37294			RunNo: 37294				
Prep Date:			Analysis Date: 9/17/2016			SeqNo: 1157983		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R37561			RunNo: 37561					
Prep Date:		Analysis Date: 9/28/2016			SeqNo: 1168729		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: R37561			RunNo: 37561					
Prep Date:		Analysis Date: 9/28/2016			SeqNo: 1168730		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	95.0	90	110			
Sulfate	9.6	0.50	10.00	0	96.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.6	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	LCS-27435		SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	LCSW		Batch ID: 27435			RunNo: 37115				
Prep Date:	9/12/2016		Analysis Date: 9/12/2016			SeqNo: 1151345		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	111	63.2	155			
Surr: DNOP	0.59		0.5000		119	77.1	144			

Sample ID	MB-27435		SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range				
Client ID:	PBW		Batch ID: 27435			RunNo: 37115				
Prep Date:	9/12/2016		Analysis Date: 9/12/2016			SeqNo: 1151346		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.3		1.000		127	77.1	144			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R37199	RunNo:	37199					
Prep Date:		Analysis Date:	9/14/2016	SeqNo:	1154193	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R37199			RunNo: 37199					
Prep Date:		Analysis Date: 9/14/2016			SeqNo: 1154193	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	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.7	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.3		10.00		93.3	70	130			

Sample ID	100ng lcsb	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R37199			RunNo: 37199					
Prep Date:		Analysis Date: 9/14/2016			SeqNo: 1154194	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	113	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	19	1.0	20.00	0	95.8	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

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	100ng lcsb	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	LCSW	Batch ID: R37199			RunNo: 37199					
Prep Date:		Analysis Date: 9/14/2016			SeqNo: 1154194		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	21	1.0	20.00	0	106	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.0	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.6		10.00		95.5	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	mb-27489	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27489	RunNo:	37269					
Prep Date:	9/14/2016	Analysis Date:	9/16/2016	SeqNo:	1157087	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	6.6	20								J
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	5.6	10								J
Diethyl phthalate	ND	10								
Dimethyl phthalate	3.0	10								J
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	7.9	20								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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	mb-27489	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	27489	RunNo:	37269					
Prep Date:	9/14/2016	Analysis Date:	9/16/2016	SeqNo:	1157087	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	2.9	10								J
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	2.5	10								J
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	96		200.0		48.1	15	123			
Surr: Phenol-d5	82		200.0		40.8	4.13	124			
Surr: 2,4,6-Tribromophenol	140		200.0		69.0	18.4	134			
Surr: Nitrobenzene-d5	65		100.0		64.9	28.8	134			
Surr: 2-Fluorobiphenyl	57		100.0		57.0	35.9	125			
Surr: 4-Terphenyl-d14	58		100.0		58.2	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	Ics-27489		SampType: LCS			TestCode: EPA Method 8270C: Semivolatiles				
Client ID:	LCSW		Batch ID: 27489			RunNo: 37269				
Prep Date:	9/14/2016		Analysis Date: 9/16/2016			SeqNo: 1157090		Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	72	10	100.0	0	71.6	35	113			
4-Chloro-3-methylphenol	140	10	200.0	0	71.2	40.7	114			
2-Chlorophenol	140	10	200.0	0	70.9	37.6	113			
1,4-Dichlorobenzene	56	10	100.0	0	56.2	37.7	106			
2,4-Dinitrotoluene	67	10	100.0	0	67.2	37	91			
N-Nitrosodi-n-propylamine	73	10	100.0	0	72.5	45.4	105			
4-Nitrophenol	110	10	200.0	0	52.9	33.4	104			
Pentachlorophenol	120	20	200.0	0	58.0	29.5	94.9			
Phenol	110	10	200.0	0	57.3	30.6	119			
Pyrene	62	10	100.0	0	62.4	26.2	120			
1,2,4-Trichlorobenzene	62	10	100.0	0	62.2	39.9	125			
Surr: 2-Fluorophenol	120		200.0		60.1	15	123			
Surr: Phenol-d5	130		200.0		63.9	4.13	124			
Surr: 2,4,6-Tribromophenol	150		200.0		74.4	18.4	134			
Surr: Nitrobenzene-d5	70		100.0		69.6	28.8	134			
Surr: 2-Fluorobiphenyl	67		100.0		67.2	35.9	125			
Surr: 4-Terphenyl-d14	48		100.0		48.4	15	146			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1609504

19-Oct-16

Client: Western Refining Southwest, Gallup

Project: 2016 Annual

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G37199	RunNo:	37199					
Prep Date:		Analysis Date:	9/14/2016	SeqNo:	1154472	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	9.4		10.00		94.1	70	130			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G37199	RunNo:	37199					
Prep Date:		Analysis Date:	9/14/2016	SeqNo:	1154473	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	105	75.4	118			
Surr: BFB	10		10.00		100	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G37240	RunNo:	37240					
Prep Date:		Analysis Date:	9/15/2016	SeqNo:	1155943	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	9.6		10.00		95.5	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G37240	RunNo:	37240					
Prep Date:		Analysis Date:	9/15/2016	SeqNo:	1155944	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	75.4	118			
Surr: BFB	9.7		10.00		96.7	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
R RPD outside accepted recovery limits
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Detection Limit
W Sample container temperature is out of limit as specified



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: Western Refining Gallup

Work Order Number: 1609504

RcptNo: 1

Received by/date:

FO

09/09/16

Logged By: Ashley Gallegos

9/9/2016 4:55:00 PM

Ag

Completed By: Ashley Gallegos

9/12/2016 10:05:49 AM

Ag

Reviewed By:

as

09/14/16

Chain of Custody

1. Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

Log In

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

of preserved
bottles checked
for pH: 18, 2
(<2 or >12 unless noted)
Adjusted? No
Checked by: Jc

Special Handling (if applicable)

16. 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: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining Company

GALLUP REFINERY

Mailing Address: **NOTE NEW ADDRESS**

92 GIANT CROSSING ROAD, GALLUP, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-863-0930

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

X Standard ☐ Rush

Project Name:

2016 ANNUAL

Project #:

SMW-4, MW-1, MW-2, MW-5, MW-4

Project Manager:

C. JOHNSON (cheryl.johnson@wnr.com)

Sampler: C. JOHNSON

On Ice: ☒ Yes ☐ No

Sample Temperature: 10C

Container Type and #

Preservative Type

HEAL No. 11009504



**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.	8260+MTBE	8015D	8270C + PHENOLS	WQCC Metals - Total	WQCC Metals - Dissolved (Filtered)	Major Cations/Anions	CYANIDE	Air Bubbles (Y or N)
9/8/2016	1645	AQUEOUS	BW-1C				X	X	X	X	X	X	X	
9/8/2016	1745	AQUEOUS	OW-12				X	X	X	X	X	X	X	
9/9/2016	952	AQUEOUS	OW-52				X	X	X	X	X	X	X	
9/9/2016	1040	AQUEOUS	OW-50				X	X	X	X	X	X	X	
9/9/2016	1120	AQUEOUS	STP1-NW				X	X	X	X	X	X	X	
9/9/2016	1245		SMW-2				X	X	X	X	X	X	X	
			TRIP BLANK				X	X	X	X	X	X	X	
			FIELD BLANK				X	X	X	X	X	X	X	

Relinquished by: [Signature] Date: 9/9/16 Time: 1400

Relinquished by: [Signature] Date: 9/9/16 Time: 1500

Received by: [Signature] Date: 9/9/16 Time: 1500

Received by: [Signature] Date: 9/9/16 Time: 1655

Remarks:

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

Appendix I
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 North Drainage Ditch and the Northeast MTBE Plume Areas 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 38 soil samples and 10 groundwater samples (excluding QA samples) were collected from May 19, 2016 through September 16, 2016 in accordance with the OW-29 and OW-30 & North Drainage Ditch Area Investigation Work Plan (DiSorbo, 2015). Soil and 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 SW846 Method 6010/6020;
- Cyanide by SW-846 method 9012; and
- Mercury by EPA Method 7470.

The groundwater samples were analyzed for water quality parameters including, sulfate, chloride, and fluoride.

Additionally, 16 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, field 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 collected 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. The sample bottle for the total metals analyses for sample NDD-4-GW was apparently received with a pH outside the desired range, thus the lab added one milliliter of HNO₃ and held the sample for 24 hours prior to analysis to ensure no metals had precipitated in the sample. The associated sample results are not qualified.

HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits.

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:

- 1,2-Dichloroethane and 2-methylnaphthalene were detected in the blank for batch A34608 in report 1605B47. 1,2-Dichloroethane was not detected in the associated samples but 2-methylnaphthalene was detected. Because 2-methylnaphthalene was detected in the method blank at a concentration well below the required minimum quantitation limit and well above in the associated samples, the results are not qualified.
 - Naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, 4-methyl-2-pentone, and 1,2,4-trichlorobenzene were detected in the method blank in batch R34673, lab report 1605B47. The associated results are non-detect and thus are not qualified.
 - Benzoic acid, bis (2-ethylhexyl)phthalate, di-n-butyl phthalate were detected in the method blank for batch 25602, lab reports 1605B47, 1605B84, and 1605C00. Benzoic acid was not detected in any of the associated samples, but bis (2-ethylhexyl) phthalate and di-n-butyl
-

phthalate were both detected in multiple samples. The sample results are qualified as J+ in Table A-2.

- Mercury was detected in the method blank in batch 25602, lab report 1605B47 and in many of the associated samples. Most of the reported concentrations were sufficiently higher than the blank concentration, but three samples were only marginally above the concentration reported in the method blank and are qualified as J+ in Table A-2.
- Toluene and trichloroethylene were detected in the method blank in lab batch 25547, lab report 1605B84. Trichloroethylene was not detected and is not qualified in the associated samples. Toluene was detected in one sample at a concentration well above that reported in the blank, but only slightly above the blank concentration in the second sample, which is qualified (J+) in Table A-2.
- 1,2-Dichloroethane and 2-methylnaphthalene were detected in the method blank in batch A34608, lab report 1605B84. 1,2-Dichloroethane was not detected, but 2-methylnaphthalene was detected at a low concentration that is actually less than that reported in the method blank. The result is qualified as non-detect in Table A-2.
- 1-Methylnaphthalene, 2-methylnaphthalene, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene were detected in the method blank for batch A34663, lab report 1605C00. None of the constituents were detected in the associated sample and no results are qualified.
- Benzoic acid and bis (2-ethylhexyl)phthalate were detected in the method blank for batch 25633, lab report 1605C00. Benzoic acid was not detected in any of the associated samples, but bis (2-ethylhexyl) phthalate was detected and is qualified as J+ in Table A-2.
- Mercury was detected in the method blank in batch 25606, lab report 1605C00 and in many of the associated samples. Most of the reported concentrations were sufficiently higher than the blank concentration, but three samples were only marginally above the concentration reported in the method blank and are qualified as J+ in Table A-2.
- Iron and manganese were detected in the method blank for batch 25604; however, the associated reported concentration greatly exceeded the concentrations in the method blank and thus none of the results are 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 with the following exceptions:

Lab Report 1605C89

- The VOC acetone was detected at 33 ug/L and 40 ug/L in TRIP Blank Samples No. 1605C89-003 and 1605C89-010, respectively. It was also detected in groundwater samples NDD-4-GW and NDD-16-GW at concentrations less than those in the blanks. Sample results are qualified in Table A-2; and

Lab Report 1606136

- VOCs acetone (20 ug/L and 17 ug/L), 2-butanone (3.2J ug/L and 3.0J ug/L), chlorobenzene (2.7 ug/L and 2.7 ug/L), and methylene chloride (0.37J ug/L and 0.38J ug/L) were detected in TRIP Blank Samples No. 1606136-003 and 1606136-006, respectively. The analytes were detected in the groundwater samples OW-56 and OW-54, but at concentrations less than those in the blanks with the exception of acetone and 2-butanone that barely exceeded the concentrations reported in the associated method blanks. The affected sample results are qualified in Table A-2.

Field Blanks/Equipment Rinsate Blank

Field and equipment rinsate blanks were collected as specified in the OW-29 & OW-30 and North Drainage Ditch Investigation Work Plan and the Permit. The following constituents were detected in equipment rinsate blanks:

- dimethyl phthalate was detected in sample 1605B41-001 at 2.6J ug/L;
- manganese (0.00037J mg/L) and zinc (0.04 mg/l) in sample 1605C00-001;
- chloride at 0.074 mg/L, bis(2-ethylhexyl)phthalate at 3.3J ug/L, di-n-octyl phthalate at 5.0J ug/l, ethylbenzene at 0.12J ug/L, naphthalene at 0.24J ug/L, 1-methylnaphthalene at 0.48J ug/L, and 2-methylnaphthalene at 0.43J ug/L in sample 1605C89-011;
- chloride at 0.11 mg/L, manganese at 0.00033J mg/L, zinc at 0.041 mg/L, and acetone at 6.8J ug/L in sample 1605999-001; and
- sulfate at 0.13 mg/L, manganese at 0.0012J mg/L, zinc at 0.0057 mg/L, barium at 0.0017 mg/L, bis(2-ethylhexyl)phthalate at 3.8J ug/L, di-n-octyl phthalate at 5.2J ug/L, toluene at 0.32J ug/L, and acetone 9.2J ug/L in sample 1606136-004.

As the concentrations are generally well below the associated reported concentration and/or the affected samples are already qualified based on the presence in other QC samples (e.g., method blanks) no results are qualified based on these detections.

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 acetone, 2-butanone and phthalates 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 reporting limits.

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 1605B47

- Surrogate recovery for 2,4,6-tribromophenol (Method 8270) was high and above the acceptance limit for field sample NDD-6 (0-0.5'). The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds are not qualified.
- Surrogate recovery for nitrobenzene-d5 (Method 8270) was below the acceptance limit for field sample NDD-6 (1.5-2'). The surrogate recovery for five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds are not qualified.
- Surrogate recoveries for 2,4,6-tribromophenol, 2-fluorobiphenyl, and 4-terphenyl-d14 (Method 8270) were above the acceptance limits and surrogate recovery for nitrobenzene-d5 (Method 8270) was below the acceptance limit in sample NDD-6 (4-6'). The recoveries for the associated LCS are within limits and thus the associated results are not qualified.

Lab Report 1605C89

-
-
- Surrogate recoveries for 2-fluorophenol, nitrobenzene-d5, and 2-fluorobiphenyl (Method 8270) were below the acceptance limit for field sample NDD-4-GW. The matrix spike and matrix spike duplicate recoveries are all within limits, thus the results are not qualified.

Lab Report 1605999

- Surrogate recoveries for 2-fluorophenol, nitrobenzene-d5, and phenol-d5 (Method 8270) were below the acceptance limit for sample NDD-8 (1.5-2'). The LCS recoveries are all within limits, thus the results are not qualified.
- The surrogate recovery for 4-bromofluorobenzene (Method 8260) was below the acceptance limit for sample NDD-9 (1.5-2') and NDD-5 (1.5-2'). The LCS recoveries are all within limits, thus the results are not qualified.

Lab Report 1606136-005

- Surrogate recovery for 2-fluorophenol was below the acceptance limit for samples OW-55 and DUP01-GW-OW. The surrogate recovery for other five of the six surrogates included in Method 8270C were within limits. Since only one surrogate was outside limits, the associated field sample results for semi-volatile organic compounds 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 1605B47

LCS recovery for gasoline range organics (GRO) in batch 25547 was above the acceptance limit. Only sample NDD-6 (4-6') had a detected result and it is qualified in Table A-2.

Lab Report 1605B84

LCS recovery for gasoline range organics (GRO) in batch 25547 was above the acceptance limit. Only sample OW-55 (30-32') had a detected result and it is qualified in Table A-2.

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.
- 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 1605B47

The MS and MSD recoveries for GRO in batch 25547 were above the acceptance limit. Only sample NDD-6 (4-6') had a detected result and it is qualified in Table A-2.

Lab Report 1605C00

The MS and MSD recoveries for cobalt, lead, and selenium were below the acceptance limit in lab batch 25604. The affected results for samples NDD-16 (0-0.5'), NDD-16 (1.5-2'), NDD-16 (14-16'), and NDD-16 (22-24') are qualified in Table A-2.

The MS and/or MSD recoveries for several metals (antimony, barium, cobalt, lead, nickel, and zinc) were below acceptance limits for batch 25681. This affects only samples DUP-01 and DUP-02. However, the reference values are significant in comparison to the spike values, thus the low recoveries are not reflective of a laboratory problem and the associated results are not qualified.

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 Table 3A 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
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
EB051916	1605999-001	5/19/2016	EB
MeOH Blank	1605999-002	NA	FB
NDD-17 (0-0.5')	1605999-003	5/19/2016	N
NDD-17 (1.5-2')	1605999-004	5/19/2016	N
NDD-15 (0-0.5')	1605999-005	5/19/2016	N
NDD-15 (1.5-2')	1605999-006	5/19/2016	N
NDD-14 (0-0.5')	1605999-007	5/19/2016	N
NDD-14 (1.5-2')	1605999-008	5/19/2016	N
NDD-13 (0-0.5')	1605999-009	5/19/2016	N
NDD-13 (1.5-2')	1605999-010	5/19/2016	N
NDD-10 (0-0.5')	1605999-011	5/19/2016	N
NDD-10 (1.5-2')	1605999-012	5/19/2016	N
NDD-12 (0-0.5')	1605999-013	5/19/2016	N
NDD-12 (1.5-2')	1605999-014	5/19/2016	N
NDD-7 (0-0.5')	1605999-015	5/19/2016	N
NDD-7 (1.5-2')	1605999-016	5/19/2016	N
NDD-8 (0-0.5')	1605999-017	5/19/2016	N
NDD-8 (1.5-2')	1605999-018	5/19/2016	N
NDD-9 (0-0.5')	1605999-019	5/19/2016	N
NDD-9 (1.5-2')	1605999-020	5/19/2016	N
NDD-5 (0-0.5')	1605999-021	5/19/2016	N
NDD-5 (1.5-2')	1605999-022	5/19/2016	N
DUP01	1605999-023	5/19/2016	FD
DUP02	1605999-024	5/19/2016	FD
EB052316	1605B47-001	5/23/2016	EB
NDD-4 (0-0.5')	1605B47-002	5/23/2016	N
NDD-4 (1.5-2')	1605B47-003	5/23/2016	N
NDD-4 (8-10')	1605B47-004	5/23/2016	N
NDD-4 (18-20')	1605B47-005	5/23/2016	N
NDD-6 (0-0.5')	1605B47-006	5/23/2016	N
NDD-6 (1.5-2')	1605B47-007	5/23/2016	N
NDD-6 (4-6')	1605B47-008	5/23/2016	N
NDD-6 (10-12')	1605B47-009	5/23/2016	N
NDD-11 (0-0.5')	1605B47-010	5/23/2016	N
NDD-11 (1.5-2')	1605B47-011	5/23/2016	N
NDD-11 (12-14')	1605B47-012	5/23/2016	N
DUP03	1605B47-013	5/23/2016	FD
OW-55 (16-18')	1605b84-001	5/24/2016	N
OW-55 (30-32')	1605b84-002	5/24/2016	N
EB052416	1605C00-001	5/24/2016	EB
NDD-16 (0-0.5')	1605c00-002	5/24/2016	N
NDD-16 (1.5-2')	1605c00-003	5/24/2016	N
NDD-16 (14-16')	1605c00-004	5/24/2016	N
NDD-16 (22-24')	1605C00-005	5/24/2016	N

Table A-1
Sample Identification
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Lab ID	Date Collected	Sample Type
OW-54 (14-16')	1605c77-001	5/25/2016	N
NDD-6-GW	1605c89-001	5/26/2016	N
Trip Blank	1605C89-003	NA	TB
NDD-4-GW	1605c89-004	5/26/2016	N
NDD-11-GW	1605c89-006	5/26/2016	N
NDD-16-GW	1605c89-008	5/26/2016	N
Trip Blank	1605c89-010	NA	TB
EB052616	1605c89-011	5/26/2016	EB
DUP01-GW	1605c89-013	5/26/2016	FD
Trip Blank	1605c89-015	NA	TB
OW-56	1606136-001	6/1/2016	N
OW-54	1606136-002	6/1/2016	N
TRIP BLANK	1606136-003	NA	TB
EB060116	1606136-004	6/1/2016	EB
OW-55	1606136-005	6/1/2016	N
TRIP BLANK	1606136-006	NA	TB
DUP01-GW-OW	1606136-007	6/1/2016	FD
OW-55	1609a26-001	9/16/2016	N
FB091616	1609a26-002	9/16/2016	FB
OW-56	1609a26-003	9/16/2016	N
OW-54	1609a26-004	9/16/2016	N
DUP06	1609a26-005	9/16/2016	FD
TRIP BLANK	1609a26-006	NA	TB

Table A-2
Qualified Data
North Drainage Dith and OW-29 OW-30 Area Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
NDD-4 (0-0.5')	5/23/2016	bis (2-ethylhexyl) phthalate	0.16	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-4 (1.5-2')	5/23/2016	bis (2-ethylhexyl) phthalate	0.16	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-4 (8-10')	5/23/2016	bis (2-ethylhexyl) phthalate	0.15	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-4 (18-20')	5/23/2016	bis (2-ethylhexyl) phthalate	0.17	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-6 (0-0.5')	5/23/2016	bis (2-ethylhexyl) phthalate	0.17	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-6 (1.5-2')	5/23/2016	bis (2-ethylhexyl) phthalate	0.2	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-6 (10-12')	5/23/2016	bis (2-ethylhexyl) phthalate	0.16	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (0-0.5')	5/23/2016	bis (2-ethylhexyl) phthalate	0.15	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (0-0.5')	5/23/2016	di-n-buty phthalate	0.11	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (1.5-2')	5/23/2016	bis (2-ethylhexyl) phthalate	0.18	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (1.5-2')	5/23/2016	di-n-buty phthalate	0.11	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (12-14')	5/23/2016	bis (2-ethylhexyl) phthalate	0.12	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
DUP03	5/23/2016	bis (2-ethylhexyl) phthalate	0.12	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
DUP03	5/23/2016	di-n-buty phthalate	0.088	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-4 (18-20')	5/23/2016	mercury	0.0015	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-6 (10-12')	5/23/2016	mercury	0.0024	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-11 (12-14')	5/23/2016	mercury	0.0018	mg/kg	soil	j+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-55 (30-32')	5/24/2016	toluene	0.019	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-55 (30-32')	5/24/2016	2-methylnaphthalene	0.017	mg/kg	soil	U	the result is qualified as non-detect because the reported concentration is less than that shown in the method blank
OW-55 (16-18')	5/24/2016	bis (2-ethylhexyl) phthalate	0.16	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-55 (16-18')	5/24/2016	di-n-buty phthalate	0.1	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-55 (30-32')	5/24/2016	bis (2-ethylhexyl) phthalate	0.14	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-55 (30-32')	5/24/2016	di-n-buty phthalate	0.097	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (0-0.5')	5/24/2016	bis (2-ethylhexyl) phthalate	0.21	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (0-0.5')	5/24/2016	di-n-buty phthalate	0.11	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (1.5-2')	5/24/2016	bis (2-ethylhexyl) phthalate	0.17	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (1.5-2')	5/24/2016	di-n-buty phthalate	0.12	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (14-16')	5/24/2016	bis (2-ethylhexyl) phthalate	0.14	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (14-16')	5/24/2016	di-n-buty phthalate	0.12	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (22-24')	5/24/2016	bis (2-ethylhexyl) phthalate	0.12	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (1.5-2')	5/24/2016	mercury	0.0057	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (14-16')	5/24/2016	mercury	0.0039	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-16 (22-24')	5/24/2016	mercury	0.0015	mg/kg	soil	J+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-4-GW	5/26/2016	acetone	0.013	mg/l	water	j+	detected in method blank at concentration greater than in sample
NDD-16-GW	5/26/2016	acetone	0.019	mg/l	water	j+	detected in method blank at concentration greater than in sample
OW-56	6/1/2016	acetone	0.0092	mg/l	water	j+	detected in method blank at concentration greater than in sample
OW-54	6/1/2016	acetone	0.021	mg/l	water	j+	detected in method blank at concentration less than sample, but close enough to require qualification
OW-54	6/1/2016	2-butanone	0.0054	mg/l	water	j+	detected in method blank at concentration less than sample, but close enough to require qualification
NDD-6 (4-6')	5/23/2016	gasoline range organics	660	mg/kg	Soil	J+	Qualified high bias due to LCS recovery above limit for batch 25547
OW-55 (30-32')	5/24/2016	gasoline range organics	3.4	mg/kg	Soil	J+	Qualified high bias due to LCS recovery above limit for batch 25547

Table A-2
Qualified Data
North Drainage Dith and OW-29 OW-30 Area Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

Sample ID	Date Collected	Analyte	Result	Units	Matrix	Qualifier	Comments
NDD-6 (4-6')	5/23/2016	gasoline range organics	660	mg/kg	Soil	J+	Qualified high bias due to MS and MSD recoveries above limits for batch 25547
OW-55 (30-32')	5/24/2016	gasoline range organics	3.4	mg/kg	Soil	J+	Qualified high bias due to MS and MSD recoveries above limits for batch 25547
NDD-16 (0-0.5')	5/24/2016	cobalt	6.4	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (0-0.5')	5/24/2016	lead	6.4	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (0-0.5')	5/24/2016	selenium	<1.5	mg/kg	Soil	UJ	Qualified due to low MS/MSD recovery for batch 25604
NDD-16 (1.5-2')	5/24/2016	cobalt	6.6	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (1.5-2')	5/24/2016	lead	5.3	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (1.5-2')	5/24/2016	selenium	<1.4	mg/kg	Soil	UJ	Qualified due to low MS/MSD recovery for batch 25604
NDD-16 (14-16')	5/24/2016	cobalt	4.6	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (14-16')	5/24/2016	lead	3.3	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (14-16')	5/24/2016	selenium	<1.3	mg/kg	Soil	UJ	Qualified due to low MS/MSD recovery for batch 25604
NDD-16 (22-24')	5/24/2016	cobalt	7.5	mg/kg	Soil	J-	Qualified low bias due to low MS/MSD recovery for batch 25604
NDD-16 (22-24')	5/24/2016	lead	<0.21	mg/kg	Soil	UJ	Qualified due to low MS/MSD recovery for batch 25604
NDD-16 (22-24')	5/24/2016	selenium	<1.3	mg/kg	Soil	UJ	Qualified due to low MS/MSD recovery for batch 25604

Notes:

UJ = Estimated reporting concentration

J- = Low bias

J+ = High bias

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-15 (0-0.5')	DUP01	RPD %
	1605999-005	1605999-023	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/kg)			
Diesel Range Organics (DRO)	4.2 u	4.5 u	NC
Gasoline Range Organics (GRO)	0.65 J	3.9 J	35.7
Motor Oil Range Organics (MRO)	59 u	63 u	NC
VOCs - SW8260B (mg/kg)			
1,1,1,2-Tetrachloroethane	0.00215 u	0.00443 u	NC
1,1,1-Trichloroethane	0.00215 u	0.00282 u	NC
1,1,2,2-Tetrachloroethane	0.00215 u	0.00749 u	NC
1,1,2-Trichloroethane	0.00215 u	0.00545 u	NC
1,1-Dichloroethane	0.00215 u	0.00250 u	NC
1,1-Dichloroethene	0.00035 u	0.01515 u	NC
1,1-Dichloropropene	0.00215 u	0.00367 u	NC
1,2,3-Trichlorobenzene	0.00052 u	0.00692 u	NC
1,2,3-Trichloropropane	0.00215 u	0.00800 u	NC
1,2,4-Trichlorobenzene	0.00065 u	0.00495 u	NC
1,2,4-Trimethylbenzene	0.376 J	0.00340 u	NC
1,2-Dibromo-3-chloropropane	0.00023 u	0.014165 u	NC
1,2-Dibromoethane (EDB)	0.00215 u	0.003289 u	NC
1,2-Dichlorobenzene	0.00031 u	0.004036 u	NC
1,2-Dichloroethane (EDC)	0.00215 u	0.012058 u	NC
1,2-Dichloropropane	0.00215 u	0.003878 u	NC
1,3,5-Trimethylbenzene	0.00035 u	0.003354 u	NC
1,3-Dichlorobenzene	0.00040 u	0.003792 u	NC
1,3-Dichloropropane	0.00215 u	0.005247 u	NC
1,4-Dichlorobenzene	0.00040 u	0.005730 u	NC
1-Methylnaphthalene	0.00024 u	0.010283 u	NC
2,2-Dichloropropane	0.00027 u	0.002648 u	NC
2-Butanone	3.76 J	0.026426 u	NC
2-Chlorotoluene	0.00037 u	0.003412 u	NC
2-Hexanone	0.00054 u	0.025163 u	NC
2-Methylnaphthalene	0.00057 u	0.009906 u	NC
4-Chlorotoluene	0.00036 u	0.004090 u	NC
4-Isopropyltoluene	0.00040 u	0.004152 u	NC
4-Methyl-2-pentanone	0.00430 u	0.013476 u	NC
Acetone	45.4 v	0.059832 u	NC
Benzene	0.00215 u	0.018502 u	NC
Bromobenzene	0.00022 u	0.003728 u	NC
Bromodichloromethane	0.00215 u	0.002695 u	NC
Bromoform	0.00215 u	0.005632 u	NC
Bromomethane	0.00039 u	0.017036 u	NC
Carbon disulfide	0.00080 u	0.015268 u	NC
Carbon tetrachloride	0.00215 u	0.003036 u	NC
Chlorobenzene	0.00025 u	0.003765 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-15 (0-0.5')	DUP01	RPD %
	1605999-005	1605999-023	
	Sample Result	Duplicate Result	
VOCs - SW8260B (mg/kg)			
Chloroethane	0.00040 u	0.009230 u	NC
Chloroform	0.00215 u	0.003489 u	NC
Chloromethane	0.00054 u	0.004116 u	NC
cis-1,2-DCE	0.00215 u	0.002689 u	NC
cis-1,3-Dichloropropene	0.00215 u	0.004264 u	NC
Dibromochloromethane	0.00215 u	0.004178 u	NC
Dibromomethane	0.00215 u	0.004006 u	NC
Dichlorodifluoromethane	0.00126 u	0.014308 u	NC
Ethylbenzene	0.00029 u	0.003789 u	NC
Hexachlorobutadiene	0.00049 u	0.005655 u	NC
Isopropylbenzene	0.00027 u	0.003974 u	NC
Methyl tert-butyl ether (MTBE)	0.00036 u	0.014533 u	NC
Methylene chloride	0.00215 u	0.014 J	NC
Naphthalene	0.00215 u	0.00723 u	NC
n-Butylbenzene	0.00052 u	0.00409 u	NC
n-Propylbenzene	0.00038 u	0.00356 u	NC
sec-Butylbenzene	0.00038 u	0.00641 u	NC
Styrene	0.00027 u	0.00413 u	NC
tert-Butylbenzene	0.00031 u	0.00383 u	NC
Tetrachloroethene (PCE)	0.00028 u	0.00384 u	NC
Toluene	0.613 J	0.00274 u	NC
trans-1,2-DCE	0.00022 u	0.01294 u	NC
trans-1,3-Dichloropropene	0.00026 u	0.00677 u	NC
Trichloroethene (TCE)	0.00215 u	0.00496 u	NC
Trichlorofluoromethane	0.00027 u	0.00346 u	NC
Vinyl chloride	0.00057 u	0.00378 u	NC
Xylenes, Total	0.00086 u	0.00876 u	NC
SVOCs - SW8270C (mg/kg)			
1,2,4-Trichlorobenzene	0.13391 u	0.13249 u	NC
1,2-Dichlorobenzene	0.09481 u	0.09381 u	NC
1,3-Dichlorobenzene	0.09568 u	0.09467 u	NC
1,4-Dichlorobenzene	0.10466 u	0.10355 u	NC
1-Methylnaphthalene	0.12439 u	0.12307 u	NC
2,4,5-Trichlorophenol	0.12388 u	0.12258 u	NC
2,4,6-Trichlorophenol	0.10270 u	0.10162 u	NC
2,4-Dichlorophenol	0.11548 u	0.11426 u	NC
2,4-Dimethylphenol	0.13443 u	0.13301 u	NC
2,4-Dinitrophenol	0.08210 u	0.08124 u	NC
2,4-Dinitrotoluene	0.11055 u	0.10938 u	NC
2,6-Dinitrotoluene	0.13098 u	0.12960 u	NC
2-Chloronaphthalene	0.09745 u	0.09642 u	NC
2-Chlorophenol	0.09758 u	0.09655 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-15 (0-0.5')	DUP01	RPD %
	1605999-005	1605999-023	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/kg)			
2-Methylnaphthalene	0.14689 u	0.14533 u	NC
2-Methylphenol	0.10347 u	0.10238 u	NC
2-Nitroaniline	0.13342 u	0.13201 u	NC
2-Nitrophenol	0.12281 u	0.12151 u	NC
3,3´-Dichlorobenzidine	0.09114 u	0.09018 u	NC
3+4-Methylphenol	0.08962 u	0.08867 u	NC
3-Nitroaniline	0.10912 u	0.10797 u	NC
4,6-Dinitro-2-methylphenol	0.07486 u	0.07406 u	NC
4-Bromophenyl phenyl ether	0.11834 u	0.11709 u	NC
4-Chloro-3-methylphenol	0.14769 u	0.14613 u	NC
4-Chloroaniline	0.13458 u	0.13315 u	NC
4-Chlorophenyl phenyl ether	0.14143 u	0.13993 u	NC
4-Nitroaniline	0.08728 u	0.08636 u	NC
4-Nitrophenol	0.09430 u	0.09330 u	NC
Acenaphthene	0.10614 u	0.10502 u	NC
Acenaphthylene	0.10073 u	0.09967 u	NC
Aniline	0.11696 u	0.11572 u	NC
Anthracene	0.08217 u	0.08130 u	NC
Azobenzene	0.15084 u	0.14925 u	NC
Benz(a)anthracene	0.10656 u	0.10543 u	NC
Benzo(a)pyrene	0.09373 u	0.09274 u	NC
Benzo(b)fluoranthene	0.11180 u	0.11061 u	NC
Benzo(g,h,i)perylene	0.10915 u	0.10800 u	NC
Benzo(k)fluoranthene	0.10905 u	0.10789 u	NC
Benzoic acid	0.10263 u	0.10155 u	NC
Benzyl alcohol	0.09690 u	0.09587 u	NC
Bis(2-chloroethoxy)methane	0.13432 u	0.13290 u	NC
Bis(2-chloroethyl)ether	0.09095 u	0.08999 u	NC
Bis(2-chloroisopropyl)ether	0.11052 u	0.10936 u	NC
Bis(2-ethylhexyl)phthalate	0.10085 u	0.09979 u	NC
Butyl benzyl phthalate	0.10959 u	0.10843 u	NC
Carbazole	0.08359 u	0.08271 u	NC
Chrysene	0.10541 u	0.10429 u	NC
Dibenz(a,h)anthracene	0.10009 u	0.09903 u	NC
Dibenzofuran	0.12450 u	0.12318 u	NC
Diethyl phthalate	0.12552 u	0.12420 u	NC
Dimethyl phthalate	0.12109 u	0.11981 u	NC
Di-n-butyl phthalate	0.09256 u	0.09159 u	NC
Di-n-octyl phthalate	0.10559 u	0.10448 u	NC
Fluoranthene	0.07130 u	0.07054 u	NC
Fluorene	0.11330 u	0.11210 u	NC
Hexachlorobenzene	0.09760 u	0.09657 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-15 (0-0.5')	DUP01	RPD %
	1605999-005	1605999-023	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/kg)			
Hexachlorobutadiene	0.13949 u	0.13802 u	NC
Hexachlorocyclopentadiene	0.14152 u	0.14003 u	NC
Hexachloroethane	0.10634 u	0.10522 u	NC
Indeno(1,2,3-cd)pyrene	0.09666 u	0.09564 u	NC
Naphthalene	0.11883 u	0.11758 u	NC
Nitrobenzene	0.12774 u	0.12639 u	NC
N-Nitrosodi-n-propylamine	0.11896 u	0.11771 u	NC
N-Nitrosodiphenylamine	0.12088 u	0.11960 u	NC
Pentachlorophenol	0.07956 u	0.07871 u	NC
Phenanthrene	0.08409 u	0.08320 u	NC
Phenol	0.09323 u	0.09224 u	NC
Pyrene	0.09354 u	0.09255 u	NC
Pyridine	0.09812 u	0.09708 u	NC
Metals SW6010B (mg/kg)			
Antimony	2.93 u	2.2 J	7.1
Arsenic	1.7 J	1.2 J	8.6
Barium	380 v	340 v	2.8
Beryllium	0.84 v	0.7 v	4.5
Cadmium	0.078 u	0.077 u	NC
Chromium	9.5 v	8 v	4.3
Cobalt	4.7 v	4.1 v	3.4
Iron	15000 v	11000 v	7.7
Lead	5.2 v	5.6 v	1.9
Manganese	490 v	440 v	2.7
Nickel	8.9 v	7.5 v	4.3
Selenium	1.35 u	1.33 u	NC
Silver	0.04 u	0.04 u	NC
Vanadium	21 v	15 v	8.3
Zinc	19 v	16 v	4.3
Mercury SW7471 (mg/kg)			
Mercury	0.012 J	0.014 J	3.8
Cyanide SW9012 (mg/kg)			
Cyanide	0.1 J	0.039 u	NC

NC - not calculated due to one or both results being non-detect

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-5 (1.5-2')	DUP02	RPD %
	1605999-022	1605999-024	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/kg)			
Diesel Range Organics (DRO)	27000 v	27000 v	0.0
Gasoline Range Organics (GRO)	110 v	130 v	4.2
Motor Oil Range Organics (MRO)	19000 v	20000 v	1.3
VOCs - SW8260B (mg/kg)			
1,1,1,2-Tetrachloroethane	0.00486 u	0.00502 u	NC
1,1,1-Trichloroethane	0.00310 u	0.00320 u	NC
1,1,2,2-Tetrachloroethane	0.00823 u	0.00851 u	NC
1,1,2-Trichloroethane	0.00599 u	0.00619 u	NC
1,1-Dichloroethane	0.00274 u	0.00284 u	NC
1,1-Dichloroethene	0.01663 u	0.01719 u	NC
1,1-Dichloropropene	0.00403 u	0.00416 u	NC
1,2,3-Trichlorobenzene	0.00760 u	0.00786 u	NC
1,2,3-Trichloropropane	0.00878 u	0.00908 u	NC
1,2,4-Trichlorobenzene	0.00543 u	0.00562 u	NC
1,2,4-Trimethylbenzene	0.00374 u	0.00386 u	NC
1,2-Dibromo-3-chloropropane	0.01555 u	0.01608 u	NC
1,2-Dibromoethane (EDB)	0.00361 u	0.00373 u	NC
1,2-Dichlorobenzene	0.00443 u	0.00458 u	NC
1,2-Dichloroethane (EDC)	0.01324 u	0.01369 u	NC
1,2-Dichloropropane	0.00426 u	0.00440 u	NC
1,3,5-Trimethylbenzene	0.00368 u	0.00381 u	NC
1,3-Dichlorobenzene	0.00416 u	0.00430 u	NC
1,3-Dichloropropane	0.00576 u	0.00596 u	NC
1,4-Dichlorobenzene	0.00629 u	0.00651 u	NC
1-Methylnaphthalene	0.071 J	0.01167 u	NC
2,2-Dichloropropane	0.00291 u	0.00301 u	NC
2-Butanone	0.02902 u	0.03000 u	NC
2-Chlorotoluene	0.00375 u	0.00387 u	NC
2-Hexanone	0.02763 u	0.02857 u	NC
2-Methylnaphthalene	0.058 J	0.01125 u	NC
4-Chlorotoluene	0.00449 u	0.00464 u	NC
4-Isopropyltoluene	0.00456 u	0.00471 u	NC
4-Methyl-2-pentanone	0.01480 u	0.01530 u	NC
Acetone	0.06570 u	0.06793 u	NC
Benzene	0.02032 u	0.02100 u	NC
Bromobenzene	0.00409 u	0.00423 u	NC
Bromodichloromethane	0.00296 u	0.00306 u	NC
Bromoform	0.00619 u	0.00639 u	NC
Bromomethane	0.01871 u	0.01934 u	NC
Carbon disulfide	0.01677 u	0.01733 u	NC
Carbon tetrachloride	0.00333 u	0.00345 u	NC
VOCs - SW8260B (mg/kg)			

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-5 (1.5-2')	DUP02	RPD %
	1605999-022	1605999-024	
	Sample Result	Duplicate Result	
Chlorobenzene	0.00413 u	0.00427 u	NC
Chloroethane	0.01014 u	0.01048 u	NC
Chloroform	0.00383 u	0.00396 u	NC
Chloromethane	0.00452 u	0.00467 u	NC
cis-1,2-DCE	0.00295 u	0.00305 u	NC
cis-1,3-Dichloropropene	0.00468 u	0.00484 u	NC
Dibromochloromethane	0.00459 u	0.00474 u	NC
Dibromomethane	0.00440 u	0.00455 u	NC
Dichlorodifluoromethane	0.01571 u	0.01624 u	NC
Ethylbenzene	0.00416 u	0.00430 u	NC
Hexachlorobutadiene	0.00621 u	0.00642 u	NC
Isopropylbenzene	0.00436 u	0.00451 u	NC
Methyl tert-butyl ether (MTBE)	0.01596 u	0.01650 u	NC
Methylene chloride	0.016 J	0.01514 u	NC
Naphthalene	0.00794 u	0.00821 u	NC
n-Butylbenzene	0.00449 u	0.00465 u	NC
n-Propylbenzene	0.00391 u	0.00404 u	NC
sec-Butylbenzene	0.00703 u	0.00727 u	NC
Styrene	0.00453 u	0.00469 u	NC
tert-Butylbenzene	0.00421 u	0.00435 u	NC
Tetrachloroethene (PCE)	0.00421 u	0.00435 u	NC
Toluene	0.00301 u	0.00311 u	NC
trans-1,2-DCE	0.01422 u	0.01470 u	NC
trans-1,3-Dichloropropene	0.00743 u	0.00768 u	NC
Trichloroethene (TCE)	0.00544 u	0.00563 u	NC
Trichlorofluoromethane	0.00380 u	0.00393 u	NC
Vinyl chloride	0.00415 u	0.00429 u	NC
Xylenes, Total	0.00962 u	0.00994 u	NC
SVOCs - SW8270C (mg/kg)			
1,2,4-Trichlorobenzene	13.40 u	27.06 u	NC
1,2-Dichlorobenzene	9.49 u	19.16 u	NC
1,3-Dichlorobenzene	9.57 u	19.33 u	NC
1,4-Dichlorobenzene	10.47 u	21.15 u	NC
1-Methylnaphthalene	12.45 u	25.13 u	NC
2,4,5-Trichlorophenol	12.40 u	25.03 u	NC
2,4,6-Trichlorophenol	10.28 u	20.75 u	NC
2,4-Dichlorophenol	11.56 u	23.33 u	NC
2,4-Dimethylphenol	13.45 u	27.16 u	NC
2,4-Dinitrophenol	8.22 u	16.59 u	NC
2,4-Dinitrotoluene	11.06 u	22.34 u	NC
2,6-Dinitrotoluene	13.11 u	26.47 u	NC
SVOCs - SW8270C (mg/kg)			
2-Chloronaphthalene	9.75 u	19.69 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-5 (1.5-2')	DUP02	RPD %
	1605999-022	1605999-024	
	Sample Result	Duplicate Result	
2-Chlorophenol	9.76 u	19.72 u	NC
2-Methylnaphthalene	14.70 u	29.68 u	NC
2-Methylphenol	10.35 u	20.91 u	NC
2-Nitroaniline	13.35 u	26.96 u	NC
2-Nitrophenol	12.29 u	24.81 u	NC
3,3'-Dichlorobenzidine	9.12 u	18.42 u	NC
3+4-Methylphenol	8.97 u	18.11 u	NC
3-Nitroaniline	10.92 u	22.05 u	NC
4,6-Dinitro-2-methylphenol	7.49 u	15.12 u	NC
4-Bromophenyl phenyl ether	11.84 u	23.91 u	NC
4-Chloro-3-methylphenol	14.78 u	29.84 u	NC
4-Chloroaniline	13.47 u	27.19 u	NC
4-Chlorophenyl phenyl ether	14.15 u	28.58 u	NC
4-Nitroaniline	8.73 u	17.64 u	NC
4-Nitrophenol	9.44 u	19.05 u	NC
Acenaphthene	10.62 u	21.45 u	NC
Acenaphthylene	10.08 u	20.35 u	NC
Aniline	11.70 u	23.63 u	NC
Anthracene	8.22 u	16.60 u	NC
Azobenzene	15.09 u	30.48 u	NC
Benz(a)anthracene	10.66 u	21.53 u	NC
Benzo(a)pyrene	9.38 u	18.94 u	NC
Benzo(b)fluoranthene	11.19 u	22.59 u	NC
Benzo(g,h,i)perylene	10.92 u	22.05 u	NC
Benzo(k)fluoranthene	10.91 u	22.03 u	NC
Benzoic acid	10.27 u	20.74 u	NC
Benzyl alcohol	9.70 u	19.58 u	NC
Bis(2-chloroethoxy)methane	13.44 u	27.14 u	NC
Bis(2-chloroethyl)ether	9.10 u	18.38 u	NC
Bis(2-chloroisopropyl)ether	11.06 u	22.33 u	NC
Bis(2-ethylhexyl)phthalate	10.09 u	20.38 u	NC
Butyl benzyl phthalate	10.97 u	22.14 u	NC
Carbazole	8.36 u	16.89 u	NC
Chrysene	10.55 u	21.30 u	NC
Dibenz(a,h)anthracene	10.02 u	20.22 u	NC
Dibenzofuran	12.46 u	25.16 u	NC
Diethyl phthalate	12.56 u	25.36 u	NC
Dimethyl phthalate	12.12 u	24.47 u	NC
Di-n-butyl phthalate	9.26 u	18.70 u	NC
Di-n-octyl phthalate	10.57 u	21.34 u	NC
SVOCs - SW8270C (mg/kg)			
Fluoranthene	7.13 u	14.41 u	NC
Fluorene	11.34 u	22.89 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-5 (1.5-2')	DUP02	RPD %
	1605999-022	1605999-024	
	Sample Result	Duplicate Result	
Hexachlorobenzene	9.77 u	19.72 u	NC
Hexachlorobutadiene	13.96 u	28.19 u	NC
Hexachlorocyclopentadiene	14.16 u	28.60 u	NC
Hexachloroethane	10.64 u	21.49 u	NC
Indeno(1,2,3-cd)pyrene	9.67 u	19.53 u	NC
Isophorone	13.69 u	27.65 u	NC
Naphthalene	11.89 u	24.01 u	NC
Nitrobenzene	12.78 u	25.81 u	NC
N-Nitrosodi-n-propylamine	11.90 u	24.04 u	NC
N-Nitrosodiphenylamine	12.10 u	24.42 u	NC
Pentachlorophenol	7.96 u	16.07 u	NC
Phenanthrene	8.41 u	16.99 u	NC
Phenol	9.33 u	18.84 u	NC
Pyrene	9.36 u	18.90 u	NC
Pyridine	9.82 u	19.83 u	NC
Metals SW6010B (mg/kg)			
Antimony	5.8 J	4.1 v	8.6
Arsenic	4.6 v	3.9 v	4.1
Barium	230 v	250 v	2.1
Beryllium	0.88 v	1 v	3.2
Cadmium	0.077 u	0.078 u	NC
Chromium	13 v	14 v	1.9
Cobalt	5.3 v	5.9 v	2.7
Iron	14000 v	17000 v	4.8
Lead	7.3 v	7.4 v	0.3
Manganese	270 v	380 v	8.5
Nickel	26 v	25 v	1.0
Selenium	1.33 u	1.35 u	NC
Silver	0.039 u	0.039 u	NC
Vanadium	40 v	39 v	0.6
Zinc	56 v	53 v	1.4
Mercury SW7471 (mg/kg)			
Mercury	0.028 J	0.039 J	8.2
Cyanide SW9012 (mg/kg)			
Cyanide	0.061 J	0.039 u	NC

NC - not calculated due to one or both results being non-detect

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11 (1.5-2')	DUP03	RPD %
	1605B47-011	1605B47-013	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/kg-dry)			
Diesel Range Organics (DRO)	4.2 u	8.3 J	16.4
Gasoline Range Organics (GRO)	0.78 u	0.78 u	NC
Motor Oil Range Organics (MRO)	58 u	55 u	NC
VOCs - SW8260B (mg/Kg)			
1,1,1,2-Tetrachloroethane	0.00208 u	0.00171 u	NC
1,1,1-Trichloroethane	0.00208 u	0.00171 u	NC
1,1,2,2-Tetrachloroethane	0.00208 u	0.00171 u	NC
1,1,2-Trichloroethane	0.00208 u	0.00171 u	NC
1,1-Dichloroethane	0.00208 u	0.00171 u	NC
1,1-Dichloroethene	0.00034 u	0.00028 u	NC
1,1-Dichloropropene	0.00208 u	0.00171 u	NC
1,2,3-Trichlorobenzene	0.0005 u	0.00041 u	NC
1,2,3-Trichloropropane	0.00208 u	0.00171 u	NC
1,2,4-Trichlorobenzene	0.00063 u	0.00052 u	NC
1,2,4-Trimethylbenzene	0.000645 J	0.0004 J	11.7
1,2-Dibromo-3-chloropropane	0.00022 u	0.00018 u	NC
1,2-Dibromoethane (EDB)	0.00208 u	0.00171 u	NC
1,2-Dichlorobenzene	0.0003 u	0.00025 u	NC
1,2-Dichloroethane (EDC)	0.00208 u	0.00171 u	NC
1,2-Dichloropropane	0.00208 u	0.00171 u	NC
1,3,5-Trimethylbenzene	0.00034 u	0.00028 u	NC
1,3-Dichlorobenzene	0.00038 u	0.00032 u	NC
1,3-Dichloropropane	0.00208 u	0.00171 u	NC
1,4-Dichlorobenzene	0.00039 u	0.00032 u	NC
1-Methylnaphthalene	0.00024 u	0.00019 u	NC
2,2-Dichloropropane	0.00026 u	0.00022 u	NC
2-Butanone	0.00512 J	0.00312 J	12.1
2-Chlorotoluene	0.00035 u	0.00029 u	NC
2-Hexanone	0.00052 u	0.00043 u	NC
2-Methylnaphthalene	0.00055 u	0.00045 u	NC
4-Chlorotoluene	0.00035 u	0.00028 u	NC
4-Isopropyltoluene	0.00039 u	0.00032 u	NC
4-Methyl-2-pentanone	0.00416 u	0.00342 u	NC
Acetone	0.0456 v	0.0318 v	8.9
Benzene	0.00208 u	0.00171 u	NC
Bromobenzene	0.00021 u	0.00017 u	NC
Bromodichloromethane	0.00208 u	0.00171 u	NC
Bromoform	0.00208 u	0.00171 u	NC
Bromomethane	0.00037 u	0.00031 u	NC
Carbon disulfide	0.00077 u	0.00063 u	NC
Carbon tetrachloride	0.00208 u	0.00171 u	NC
VOCs - SW8260B (mg/Kg)			

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11 (1.5-2')	DUP03	RPD %
	1605B47-011	1605B47-013	
	Sample Result	Duplicate Result	
Chlorobenzene	0.00024 u	0.0002 u	NC
Chloroethane	0.00038 u	0.00032 u	NC
Chloroform	0.00208 u	0.00171 u	NC
Chloromethane	0.00053 u	0.00043 u	NC
cis-1,2-DCE	0.00208 u	0.00171 u	NC
cis-1,3-Dichloropropene	0.00208 u	0.00171 u	NC
Dibromochloromethane	0.00208 u	0.00171 u	NC
Dibromomethane	0.00208 u	0.00171 u	NC
Dichlorodifluoromethane	0.00121 u	0.001 u	NC
Ethylbenzene	0.00028 u	0.00023 u	NC
Hexachlorobutadiene	0.00047 u	0.00039 u	NC
Isopropylbenzene	0.00026 u	0.00021 u	NC
Methyl tert-butyl ether (MTBE)	0.00035 u	0.00029 u	NC
Methylene chloride	0.00208 u	0.00171 u	NC
Naphthalene	0.00208 u	0.00171 u	NC
n-Butylbenzene	0.00051 u	0.00042 u	NC
n-Propylbenzene	0.00037 u	0.00031 u	NC
sec-Butylbenzene	0.00037 u	0.0003 u	NC
Styrene	0.00027 u	0.00022 u	NC
tert-Butylbenzene	0.00030 u	0.00025 u	NC
Tetrachloroethene (PCE)	0.00027 u	0.00022 u	NC
Toluene	0.000863 J	0.00059 J	9.4
trans-1,2-DCE	0.00021 u	0.00017 u	NC
trans-1,3-Dichloropropene	0.00025 u	0.00021 u	NC
Trichloroethene (TCE)	0.00208 u	0.00171 u	NC
Trichlorofluoromethane	0.00026 u	0.00021 u	NC
Vinyl chloride	0.00055 u	0.00045 u	NC
Xylenes, Total	0.00083 u	0.00068 u	NC
SVOCs - SW8270C (mg/kg)			
1,2,4-Trichlorobenzene	0.13 u	0.13 u	NC
1,2-Dichlorobenzene	0.09 u	0.089 u	NC
1,3-Dichlorobenzene	0.091 u	0.089 u	NC
1,4-Dichlorobenzene	0.1 u	0.098 u	NC
1-Methylnaphthalene	0.12 u	0.12 u	NC
2,4,5-Trichlorophenol	0.12 u	0.12 u	NC
2,4,6-Trichlorophenol	0.098 u	0.096 u	NC
2,4-Dichlorophenol	0.11 u	0.11 u	NC
2,4-Dimethylphenol	0.13 u	0.13 u	NC
2,4-Dinitrophenol	0.078 u	0.077 u	NC
2,4-Dinitrotoluene	0.11 u	0.1 u	NC
2,6-Dinitrotoluene	0.12 u	0.12 u	NC
SVOCs - SW8270C (mg/kg)			
2-Chloronaphthalene	0.093 u	0.091 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11 (1.5-2')	DUP03	RPD %
	1605B47-011	1605B47-013	
	Sample Result	Duplicate Result	
2-Chlorophenol	0.093 u	0.091 u	NC
2-Methylnaphthalene	0.14 u	0.14 u	NC
2-Methylphenol	0.098 u	0.097 u	NC
2-Nitroaniline	0.13 u	0.12 u	NC
2-Nitrophenol	0.12 u	0.11 u	NC
3,3'-Dichlorobenzidine	0.087 u	0.085 u	NC
3+4-Methylphenol	0.085 u	0.084 u	NC
3-Nitroaniline	0.1 u	0.1 u	NC
4,6-Dinitro-2-methylphenol	0.071 u	0.07 u	NC
4-Bromophenyl phenyl ether	0.11 u	0.11 u	NC
4-Chloro-3-methylphenol	0.14 u	0.14 u	NC
4-Chloroaniline	0.13 u	0.13 u	NC
4-Chlorophenyl phenyl ether	0.13 u	0.13 u	NC
4-Nitroaniline	0.083 u	0.082 u	NC
4-Nitrophenol	0.09 u	0.088 u	NC
Acenaphthene	0.1 u	0.099 u	NC
Acenaphthylene	0.096 u	0.094 u	NC
Aniline	0.11 u	0.11 u	NC
Anthracene	0.078 u	0.077 u	NC
Azobenzene	0.14 u	0.14 u	NC
Benz(a)anthracene	0.1 u	0.1 u	NC
Benzo(a)pyrene	0.089 u	0.088 u	NC
Benzo(b)fluoranthene	0.11 u	0.1 u	NC
Benzo(g,h,i)perylene	0.1 u	0.1 u	NC
Benzo(k)fluoranthene	0.1 u	0.1 u	NC
Benzoic acid	0.098 u	0.096 u	NC
Benzyl alcohol	0.092 u	0.09 u	NC
Bis(2-chloroethoxy)methane	0.13 u	0.13 u	NC
Bis(2-chloroethyl)ether	0.087 u	0.085 u	NC
Bis(2-chloroisopropyl)ether	0.11 u	0.1 u	NC
Bis(2-ethylhexyl)phthalate	0.18 J	0.12 J	10.0
Butyl benzyl phthalate	0.1 u	0.1 u	NC
Carbazole	0.08 u	0.078 u	NC
Chrysene	0.1 u	0.098 u	NC
Dibenz(a,h)anthracene	0.095 u	0.093 u	NC
Dibenzofuran	0.12 u	0.12 u	NC
Diethyl phthalate	0.12 u	0.12 u	NC
Dimethyl phthalate	0.12 u	0.11 u	NC
Di-n-butyl phthalate	0.11 J	0.088 J	5.6
Di-n-octyl phthalate	0.1 u	0.099 u	NC
SVOCs - SW8270C (mg/kg)			
Fluoranthene	0.068 u	0.067 u	NC
Fluorene	0.11 u	0.11 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11 (1.5-2')	DUP03	RPD %
	1605B47-011	1605B47-013	
	Sample Result	Duplicate Result	
Hexachlorobenzene	0.093 u	0.091 u	NC
Hexachlorobutadiene	0.13 u	0.13 u	NC
Hexachlorocyclopentadiene	0.13 u	0.13 u	NC
Hexachloroethane	0.1 u	0.099 u	NC
Indeno(1,2,3-cd)pyrene	0.092 u	0.09 u	NC
Naphthalene	0.11 u	0.11 u	NC
Nitrobenzene	0.12 u	0.12 u	NC
N-Nitrosodi-n-propylamine	0.11 u	0.11 u	NC
N-Nitrosodiphenylamine	0.12 u	0.11 u	NC
Pentachlorophenol	0.076 u	0.074 u	NC
Phenanthrene	0.08 u	0.079 u	NC
Phenol	0.089 u	0.087 u	NC
Pyrene	0.089 u	0.087 u	NC
Pyridine	0.093 u	0.092 u	NC
Metals - SW6010B (mg/kg)			
Antimony	2.81 u	2.77 u	NC
Arsenic	2.4 J	1.9 J	5.8
Barium	810 v	920 v	3.2
Beryllium	0.85 v	1.2 v	8.5
Cadmium	0.075 u	0.074 u	NC
Chromium	8.1 v	12 v	9.7
Cobalt	4.4 v	5.1 v	3.7
Iron	14000 v	18000 v	6.3
Lead	4.7 v	4.8 v	0.5
Manganese	550 v	450 v	5.0
Nickel	7.6 v	10 v	6.8
Selenium	1.3 u	1.3 u	NC
Silver	0.038 u	0.037 u	NC
Vanadium	19 v	21 v	2.5
Zinc	14 v	17 v	4.8
Mercury SW7471 (mg/kg)			
Mercury	0.011 J	0.013 J	4.2
Cyanide SW9012 (mg/kg)			
Cyanide	0.133 u	0.144 u	NC

NC - not calculated due to one or both results being non-detect

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11-GW	DUP01-GW	RPD %
	1605c89-006	1605c89-013	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/L)			
Gasoline Range Organics (GRO)	53 v	52 v	0.5
Diesel Range Organics (DRO)	7.3 v	7.4 v	0.3
Motor Oil Range Organics (MRO)	5 u	5 u	NC
VOCs - SW8260B (mg/L)			
1,1,1,2-Tetrachloroethane	11.14585 u	11.14585 u	NC
1,1,1-Trichloroethane	9.14953 u	9.14953 u	NC
1,1,2,2-Tetrachloroethane	12.82329 u	12.82329 u	NC
1,1,2-Trichloroethane	12.73127 u	12.73127 u	NC
1,1-Dichloroethane	10.80516 u	10.80516 u	NC
1,1-Dichloroethene	10.72198 u	10.72198 u	NC
1,1-Dichloropropene	13.31246 u	13.31246 u	NC
1,2,3-Trichlorobenzene	11.28572 u	11.28572 u	NC
1,2,3-Trichloropropane	20.20034 u	20.20034 u	NC
1,2,4-Trichlorobenzene	13.27709 u	13.27709 u	NC
1,2,4-Trimethylbenzene	1500 v	1600 v	1.6
1,2-Dibromo-3-chloropropane	23.43344 u	23.43344 u	NC
1,2-Dibromoethane (EDB)	11.17735 u	11.17735 u	NC
1,2-Dichlorobenzene	40 u	40 u	NC
1,2-Dichloroethane (EDC)	11.50242 u	11.50242 u	NC
1,2-Dichloropropane	10.98287 u	10.98287 u	NC
1,3,5-Trimethylbenzene	400 v	420 v	1.2
1,3-Dichlorobenzene	14.3188 u	14.3188 u	NC
1,3-Dichloropropane	15.5717 u	15.5717 u	NC
1,4-Dichlorobenzene	14.2665 u	14.2665 u	NC
1-Methylnaphthalene	97 J	100 J	0.8
2,2-Dichloropropane	16.6639 u	16.6639 u	NC
2-Butanone	73.6993 u	73.6993 u	NC
2-Chlorotoluene	40 u	40 u	NC
2-Hexanone	83.987 u	83.987 u	NC
2-Methylnaphthalene	130 J	140 J	1.9
4-Chlorotoluene	12.8135 u	12.8135 u	NC
4-Isopropyltoluene	14.0612 u	14.0612 u	NC
4-Methyl-2-pentanone	42.7645 u	42.7645 u	NC
Acetone	490.87 u	490.87 u	NC
Benzene	8200 v	8400 v	0.6
Bromobenzene	9.77095 u	9.77095 u	NC
Bromodichloromethane	13.9779 u	13.9779 u	NC
Bromoform	10.2131 u	10.2131 u	NC
Bromomethane	77.9889 u	77.9889 u	NC
Carbon disulfide	59.7489 u	59.7489 u	NC
Carbon Tetrachloride	10.8203 u	10.8203 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11-GW	DUP01-GW	RPD %
	1605c89-006	1605c89-013	
	Sample Result	Duplicate Result	
VOCs - SW8260B (mg/L)			
Chlorobenzene	11.4450 u	11.4450 u	NC
Chloroethane	19.1023 u	19.1023 u	NC
Chloroform	8.87722 u	8.87722 u	NC
Chloromethane	21.2810 u	21.2810 u	NC
cis-1,2-DCE	12.4163 u	12.4163 u	NC
cis-1,3-Dichloropropene	10.65333 u	10.6533 u	NC
Dibromochloromethane	8.67346 u	8.67346 u	NC
Dibromomethane	11.9139 u	11.9139 u	NC
Dichlorodifluoromethane	35.732 u	35.732 u	NC
Ethylbenzene	1400 v	1500 v	1.7
Hexachlorobutadiene	19.8597 u	19.8597 u	NC
Isopropylbenzene	87 J	91 J	1.1
Methyl tert-butyl ether (MTBE)	180 v	180 v	0.0
Methylene Chloride	18.7419 u	18.7419 u	NC
Naphthalene	390 v	410 v	1.3
n-Butylbenzene	57 J	60 J	1.3
n-Propylbenzene	250 v	260 v	1.0
sec-Butylbenzene	12.3006 u	12.3006 u	NC
Styrene	11 u	11 u	NC
tert-Butylbenzene	11.5008 u	11.5008 u	NC
Tetrachloroethene (PCE)	15.2015 u	15.2015 u	NC
Toluene	330 v	340 v	NC
trans-1,2-DCE	40 u	40 u	NC
trans-1,3-Dichloropropene	10.327 u	10.327 u	NC
Trichloroethene (TCE)	17.5094 u	17.5094 u	NC
Trichlorofluoromethane	20.4369 u	20.4369 u	NC
Vinyl chloride	19.5376 u	19.5376 u	NC
Xylenes, Total	5700 v	5900 v	NC
SVOCs - SW8270C (mg/L)			
1,2,4-Trichlorobenzene	2.61967 u	2.61967 u	NC
1,2-Dichlorobenzene	2.28508 u	2.28508 u	NC
1,3-Dichlorobenzene	2.25697 u	2.25697 u	NC
1,4-Dichlorobenzene	2.38815 u	2.38815 u	NC
1-Methylnaphthalene	110 v	89 v	5.3
2,4,5-Trichlorophenol	2.17986 u	2.17986 u	NC
2,4,6-Trichlorophenol	2.44575 u	2.44575 u	NC
2,4-Dichlorophenol	2.33043 u	2.33043 u	NC
2,4-Dimethylphenol	37 v	35 v	1.4
2,4-Dinitrophenol	2.75347 u	2.75347 u	NC
2,4-Dinitrotoluene	3.12949 u	3.12949 u	NC
2,6-Dinitrotoluene	2.73381 u	2.73381 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11-GW	DUP01-GW	RPD %
	1605c89-006	1605c89-013	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/L)			
2-Chloronaphthalene	2.25101 u	2.25101 u	NC
2-Chlorophenol	2.18373 u	2.18373 u	NC
2-Methylnaphthalene	120 v	110 v	2.2
2-Methylphenol	2.53916 u	2.53916 u	NC
2-Nitroaniline	2.75818 u	2.75818 u	NC
2-Nitrophenol	2.37835 u	2.37835 u	NC
3,3'-Dichlorobenzidine	2.39575 u	2.39575 u	NC
3+4-Methylphenol	5.7 J	4.4 J	6.4
3-Nitroaniline	2.94785 u	2.94785 u	NC
4,6-Dinitro-2-methylphenol	1.79661 u	1.79661 u	NC
4-Bromophenyl phenyl ether	2.63670 u	2.63670 u	NC
4-Chloro-3-methylphenol	2.55876 u	2.55876 u	NC
4-Chloroaniline	2.71218 u	2.71218 u	NC
4-Chlorophenyl phenyl ether	2.55562 u	2.55562 u	NC
4-Nitroaniline	2.55892 u	2.55892 u	NC
4-Nitrophenol	2.55318 u	2.55318 u	NC
Acenaphthene	2.55290 u	2.55290 u	NC
Acenaphthylene	2.35674 u	2.35674 u	NC
Aniline	2.44060 u	2.44060 u	NC
Anthracene	2.48597 u	2.48597 u	NC
Azobenzene	2.66833 u	2.66833 u	NC
Benz(a)anthracene	2.63928 u	2.63928 u	NC
Benzo(a)pyrene	2.71774 u	2.71774 u	NC
Benzo(b)fluoranthene	2.88011 u	2.88011 u	NC
Benzo(g,h,i)perylene	2.64348 u	2.64348 u	NC
Benzo(k)fluoranthene	2.99754 u	2.99754 u	NC
Benzoic acid	2.60603 u	2.60603 u	NC
Benzyl alcohol	3.01210 u	3.01210 u	NC
Bis(2-chloroethoxy)methane	2.81359 u	2.81359 u	NC
Bis(2-chloroethyl)ether	2.67354 u	2.67354 u	NC
Bis(2-chloroisopropyl)ether	1.90891 u	1.90891 u	NC
Bis(2-ethylhexyl)phthalate	3.4 J	3.6 J	1.4
Butyl benzyl phthalate	2.47809 u	2.47809 u	NC
Carbazole	2.3 J	2.28729 u	NC
Chrysene	2.77879 u	2.77879 u	NC
Dibenz(a,h)anthracene	2.66112 u	2.66112 u	NC
Dibenzofuran	2.49333 u	2.49333 u	NC
Diethyl phthalate	2.71451 u	2.71451 u	NC
Dimethyl phthalate	2.42923 u	2.42923 u	NC
Di-n-butyl phthalate	2.44354 u	2.44354 u	NC
Di-n-octyl phthalate	6.2 J	5.9 J	1.2

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11-GW	DUP01-GW	RPD %
	1605c89-006	1605c89-013	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/L)			
Fluoranthene	2.6073 u	2.6073 u	NC
Fluorene	2.72356 u	2.72356 u	NC
Hexachlorobenzene	2.63307 u	2.63307 u	NC
Hexachlorobutadiene	2.18448 u	2.18448 u	NC
Hexachlorocyclopentadiene	2.28435 u	2.28435 u	NC
Hexachloroethane	2.36845 u	2.36845 u	NC
Indeno(1,2,3-cd)pyrene	2.96389 u	2.96389 u	NC
Isophorone	2.61508 u	2.61508 u	NC
Naphthalene	280 v	240 v	3.8
Nitrobenzene	2.75338 u	2.75338 u	NC
N-Nitrosodimethylamine	2.15801 u	2.15801 u	NC
N-Nitrosodi-n-propylamine	2.38903 u	2.38903 u	NC
N-Nitrosodiphenylamine	2.31988 u	2.31988 u	NC
Pentachlorophenol	2.34237 u	2.34237 u	NC
Phenanthrene	2.58675 u	2.58675 u	NC
Phenol	14 v	12 v	3.8
Pyrene	3.09444 u	3.09444 u	NC
Pyridine	2.16053 u	2.16053 u	NC
Dissolved Metals E200.7 (mg/L)			
Barium	3.5 Z	3.4 Z	0.7
Beryllium	0.00031 u	0.00031 u	NC
Cadmium	0.00075 u	0.00075 u	NC
Chromium	0.00175 u	0.00175 u	NC
Cobalt	0.0022 J	0.0016 J	7.9
Iron	5.6 Z	5.8 Z	0.9
Manganese	1.9 Z	1.9 Z	0.0
Nickel	0.023 v	0.023 v	0.0
Silver	0.00275 u	0.00275 u	NC
Vanadium	0.0031 J	0.003 J	0.8
Zinc	0.0066 J	0.0066 J	0.0
Metals E200.7 (mg/L)			
Barium	4.8 Z	5.3 Z	2.5
Beryllium	0.0026 v	0.0033 v	5.9
Cadmium	0.00075 u	0.00075 u	NC
Chromium	0.0078 v	0.01 v	6.2
Cobalt	0.0086 v	0.011 v	6.1
Iron	14 Z	17 Z	4.8
Manganese	2.7 Z	3 Z	2.6
Nickel	0.032 v	0.036 v	2.9
Silver	0.00275 u	0.00275 u	NC
Vanadium	0.03 J	0.037 J	5.2
Zinc	0.026 v	0.032 v	5.2

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	NDD-11-GW	DUP01-GW	RPD %
	1605c89-006	1605c89-013	
	Sample Result	Duplicate Result	
Dissolved Metals E200.8 (mg/L)			
Antimony	0.001 J	0.0011 v	2.4
Arsenic	0.023 Z	0.023 Z	0.0
Lead	0.00034 J	0.00033 J	0.7
Selenium	0.006 J	0.0057 J	1.3
Metals E200.8 (mg/L)			
Antimony	0.0024 u	0.001 v	20.3
Arsenic	0.023 Z	0.022 Z	1.1
Lead	0.024 Z	0.033 Z	7.9
Selenium	0.010 J	0.012 J	4.5
Mercury E245.1 (mg/L)			
Mercury	0.0000534 u	0.0000534 u	NC
Cyanide E335.4 (mg/L)			
Cyanide	0.00758 J	0.0059 J	6.2
Anions E300 (mg/L)			
Chloride	350 v	370 v	1.4
Fluoride	1.2 v	1.3 v	2.0
Sulfate	0.4 J	0.69 J	13.3

NC - not calculated due to one or both results being non-detect

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-55	DUP01-GW-OW	RPD %
	1606136-005	1606136-007	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/L)			
Diesel Range Organics (DRO)	7.2 v	12 v	12.5
Gasoline Range Organics (GRO)	210 v	220 v	1.2
Motor Oil Range Organics (MRO)	5 u	5 u	NC
VOCs - SW8260B (mg/L)			
1,1,1,2-Tetrachloroethane	0.00223 u	0.00223 u	NC
1,1,1-Trichloroethane	0.00183 u	0.00183 u	NC
1,1,2,2-Tetrachloroethane	0.00256 u	0.00256 u	NC
1,1,2-Trichloroethane	0.00255 u	0.00255 u	NC
1,1-Dichloroethane	0.00216 u	0.00216 u	NC
1,1-Dichloroethene	0.00214 u	0.00214 u	NC
1,1-Dichloropropene	0.00266 u	0.00266 u	NC
1,2,3-Trichlorobenzene	0.00226 u	0.00226 u	NC
1,2,3-Trichloropropane	0.00404 u	0.00404 u	NC
1,2,4-Trichlorobenzene	0.00266 u	0.00266 u	NC
1,2,4-Trimethylbenzene	1.8 v	2 v	2.6
1,2-Dibromo-3-chloropropane	0.00469 u	0.00469 u	NC
1,2-Dibromoethane (EDB)	0.00224 u	0.00224 u	NC
1,2-Dichlorobenzene	0.008 u	0.008 u	NC
1,2-Dichloroethane (EDC)	0.00230 u	0.00230 u	NC
1,2-Dichloropropane	0.00220 u	0.00220 u	NC
1,3,5-Trimethylbenzene	0.7 v	0.76 v	2.1
1,3-Dichlorobenzene	0.00286 u	0.00286 u	NC
1,3-Dichloropropane	0.00311 u	0.00311 u	NC
1,4-Dichlorobenzene	0.00285 u	0.00285 u	NC
1-Methylnaphthalene	0.078 J	0.081 v	0.9
2,2-Dichloropropane	0.00333 u	0.00333 u	NC
2-Butanone	0.01474 u	0.01474 u	NC
2-Chlorotoluene	0.008 u	0.008 u	NC
2-Hexanone	0.01680 u	0.01680 u	NC
2-Methylnaphthalene	0.12 v	0.13 v	2.0
4-Chlorotoluene	0.00256 u	0.00256 u	NC
4-Isopropyltoluene	0.011 J	0.012 J	2.2
4-Methyl-2-pentanone	0.00855 u	0.00855 u	NC
Acetone	0.09817 u	0.09817 u	NC
Benzene	24 v	24 v	0.0
Bromobenzene	0.00195 u	0.00195 u	NC
Bromodichloromethane	0.00280 u	0.00280 u	NC
Bromoform	0.00204 u	0.00204 u	NC
Bromomethane	0.01560 u	0.01560 u	NC
Carbon disulfide	0.01195 u	0.01195 u	NC
Carbon Tetrachloride	0.00216 u	0.00216 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-55	DUP01-GW-OW	RPD %
	1606136-005	1606136-007	
	Sample Result	Duplicate Result	
VOCs - SW8260B (mg/L)			
Chlorobenzene	0.00229 u	0.00229 u	NC
Chloroethane	0.00382 u	0.00382 u	NC
Chloroform	0.00178 u	0.00178 u	NC
Chloromethane	0.00426 u	0.00426 u	NC
cis-1,2-DCE	0.00248 u	0.00248 u	NC
cis-1,3-Dichloropropene	0.00213 u	0.00213 u	NC
Dibromochloromethane	0.00173 u	0.00173 u	NC
Dibromomethane	0.00238 u	0.00238 u	NC
Dichlorodifluoromethane	0.00715 u	0.00715 u	NC
Ethylbenzene	2.8 v	2.9 v	0.9
Hexachlorobutadiene	0.00397 u	0.00397 u	NC
Isopropylbenzene	0.068 v	0.073 v	1.8
Methyl tert-butyl ether (MTBE)	2 v	2 v	0.0
Methylene Chloride	0.00375 u	0.00375 u	NC
Naphthalene	0.37 v	0.4 v	1.9
n-Butylbenzene	0.075 v	0.084 v	2.8
n-Propylbenzene	0.34 v	0.37 v	2.1
sec-Butylbenzene	0.018 J	0.02 J	2.6
Styrene	0.002199996 u	0.00220 u	NC
tert-Butylbenzene	0.00230 u	0.00230 u	NC
Tetrachloroethene (PCE)	0.00304 u	0.00304 u	NC
Toluene	34 v	34 v	0.0
trans-1,2-DCE	0.008 u	0.008 u	NC
trans-1,3-Dichloropropene	0.00207 u	0.00207 u	NC
Trichloroethene (TCE)	0.00350 u	0.00350 u	NC
Trichlorofluoromethane	0.00409 u	0.00409 u	NC
Vinyl chloride	0.00391 u	0.00391 u	NC
Xylenes, Total	16 v	16 v	0.0
SVOCs - SW8270C (mg/L)			
1,2,4-Trichlorobenzene	0.00262 u	0.00262 u	NC
1,2-Dichlorobenzene	0.00229 u	0.00229 u	NC
1,3-Dichlorobenzene	0.00226 u	0.00226 u	NC
1,4-Dichlorobenzene	0.00239 u	0.00239 u	NC
1-Methylnaphthalene	0.041 v	0.044 v	1.8
2,4,5-Trichlorophenol	0.00218 u	0.00218 u	NC
2,4,6-Trichlorophenol	0.00245 u	0.00245 u	NC
2,4-Dichlorophenol	0.00233 u	0.00233 u	NC
2,4-Dimethylphenol	0.0066 J	0.008 J	4.8
2,4-Dinitrophenol	0.00275 u	0.00275 u	NC
2,4-Dinitrotoluene	0.00313 u	0.00313 u	NC
2,6-Dinitrotoluene	0.00273 u	0.00273 u	NC

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-55	DUP01-GW-OW	RPD %
	1606136-005	1606136-007	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/L)			
2-Chloronaphthalene	0.00225 u	0.00225 u	NC
2-Chlorophenol	0.00218 u	0.00218 u	NC
2-Methylnaphthalene	0.069 v	0.072 v	1.1
2-Methylphenol	0.019 v	0.023 v	4.8
2-Nitroaniline	0.00276 u	0.00276 u	NC
2-Nitrophenol	0.00238 u	0.00238 u	NC
3,3'-Dichlorobenzidine	0.00240 u	0.00240 u	NC
3+4-Methylphenol	0.028 v	0.033 v	4.1
3-Nitroaniline	0.00295 u	0.00295 u	NC
4,6-Dinitro-2-methylphenol	0.00180 u	0.00180 u	NC
4-Bromophenyl phenyl ether	0.00264 u	0.00264 u	NC
4-Chloro-3-methylphenol	0.00256 u	0.00256 u	NC
4-Chloroaniline	0.00271 u	0.00271 u	NC
4-Chlorophenyl phenyl ether	0.00256 u	0.00256 u	NC
4-Nitroaniline	0.00256 u	0.00256 u	NC
4-Nitrophenol	0.00255 u	0.00255 u	NC
Acenaphthene	0.00255 u	0.00255 u	NC
Acenaphthylene	0.00236 u	0.00236 u	NC
Aniline	0.00244 u	0.00244 u	NC
Anthracene	0.00249 u	0.00249 u	NC
Azobenzene	0.00267 u	0.00267 u	NC
Benz(a)anthracene	0.00264 u	0.00264 u	NC
Benzo(a)pyrene	0.00272 u	0.00272 u	NC
Benzo(b)fluoranthene	0.00288 u	0.00288 u	NC
Benzo(g,h,i)perylene	0.00264 u	0.00264 u	NC
Benzo(k)fluoranthene	0.00300 u	0.00300 u	NC
Benzoic acid	0.00261 u	0.00261 u	NC
Benzyl alcohol	0.00301 u	0.00301 u	NC
Bis(2-chloroethoxy)methane	0.00281 u	0.00281 u	NC
Bis(2-chloroethyl)ether	0.00267 u	0.00267 u	NC
Bis(2-chloroisopropyl)ether	0.00191 u	0.00191 u	NC
Bis(2-ethylhexyl)phthalate	0.01 v	0.0073 J	7.8
Butyl benzyl phthalate	0.00248 u	0.00248 u	NC
Carbazole	0.0024 J	0.0025 J	1.0
Chrysene	0.00278 u	0.00278 u	NC
Dibenz(a,h)anthracene	0.00266 u	0.00266 u	NC
Dibenzofuran	0.00249 u	0.00249 u	NC
Diethyl phthalate	0.00271 u	0.00271 u	NC
Dimethyl phthalate	0.00243 u	0.00243 u	NC
Di-n-butyl phthalate	0.00244 u	0.00244 u	NC
Di-n-octyl phthalate	0.0049 J	0.0049 J	0.0

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-55	DUP01-GW-OW	RPD %
	1606136-005	1606136-007	
	Sample Result	Duplicate Result	
SVOCs - SW8270C (mg/L)			
Fluoranthene	0.00261 u	0.00261 u	NC
Fluorene	0.00272 u	0.00272 u	NC
Hexachlorobenzene	0.00263 u	0.00263 u	NC
Hexachlorobutadiene	0.00218 u	0.00218 u	NC
Hexachlorocyclopentadiene	0.00228 u	0.00228 u	NC
Hexachloroethane	0.00237 u	0.00237 u	NC
Indeno(1,2,3-cd)pyrene	0.00296 u	0.00296 u	NC
Isophorone	0.00262 u	0.00262 u	NC
Naphthalene	0.22 v	0.28 Z	6.0
Nitrobenzene	0.00275 u	0.00275 u	NC
N-Nitrosodimethylamine	0.00216 u	0.00216 u	NC
N-Nitrosodi-n-propylamine	0.00239 u	0.00239 u	NC
N-Nitrosodiphenylamine	0.00232 u	0.00232 u	NC
Pentachlorophenol	0.00234 u	0.00234 u	NC
Phenanthrene	0.00259 u	0.00259 u	NC
Phenol	0.027 v	0.031 v	3.4
Pyrene	0.00309 u	0.00309 u	NC
Pyridine	0.00216 u	0.00216 u	NC
Dissolved Metals E200.7 (mg/L)			
Barium	0.9 v	0.9 v	0.0
Beryllium	0.0004 J	0.0004 J	0.0
Cadmium	0.00075 u	0.00075 u	NC
Chromium	0.00175 u	0.00175 u	NC
Cobalt	0.034 v	0.034 v	0.0
Iron	3.7 Z	3.7 Z	0.0
Manganese	4.8 Z	4.7 Z	0.5
Nickel	0.43 Z	0.44 Z	0.6
Silver	0.0028 u	0.0028 u	NC
Vanadium	0.0072 J	0.0074 J	0.7
Zinc	0.019 v	0.019 v	0.0
Total Metals E200.7 (mg/L)			
Barium	3.2 Z	2.1 Z	10.4
Beryllium	0.008 Z	0.006 Z	7.1
Cadmium	0.00075 u	0.00075 u	NC
Chromium	0.031 v	0.015 v	17.4
Cobalt	0.046 v	0.035 v	6.8
Iron	39 Z	21 Z	15.0
Manganese	6.3 Z	5.6 Z	2.9
Nickel	0.46 Z	0.39 Z	4.1
Silver	0.0028 u	0.0028 u	NC
Vanadium	0.061 v	0.047 J	6.5
Zinc	0.1 v	0.077 v	6.5

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-55	DUP01-GW-OW	RPD %
	1606136-005	1606136-007	
	Sample Result	Duplicate Result	
Dissolved Metals E200.8 (mg/L)			
Antimony	0.00047 u	0.00047 u	NC
Arsenic	0.0065 v	0.0062 v	1.2
Lead	0.00073 v	0.00062 v	4.1
Selenium	0.0091 v	0.0087 v	1.1
Total Metals E200.8 (mg/L)			
Antimony	0.00236 u	0.00236 u	NC
Arsenic	0.01 Z	0.0081 v	5.2
Lead	0.083 Z	0.051 Z	11.9
Selenium	0.009 v	0.0089 v	0.3
Mercury E200.8 (mg/L)			
Mercury	0.0000534 u	0.0000534 u	NC
Cyanide E245.1 (mg/L)			
Cyanide	0.0131 v	0.0159 v	4.8
Dissolved Cyanide	0.0161 v	0.0166 v	0.8
Anions E300 (mg/L)			
Chloride	550 v	550 v	0.0
Fluoride	0.13 J	0.113 u	NC
Sulfate	16 v	7.1 v	19.3

NC - not calculated due to one or both results being non-detect

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-54	DUP06	RPD %
	1609a26-004	1609a26-005	
	Sample Result	Duplicate Result	
TPH - SW8015 (mg/L)			
Gasoline Range Organics (GRO)	3.2 v	3.4 v	1.5
Diesel Range Organics (DRO)	1.6 v	1.7 v	1.5
Motor Oil Range Organics (MRO)	5 u	5 u	NC
VOCs - SW8260B (mg/L)			
1,1,1,2-Tetrachloroethane	0.55729 u	1.11459 u	NC
1,1,1-Trichloroethane	0.45748 u	0.91495 u	NC
1,1,2,2-Tetrachloroethane	0.64116 u	1.28233 u	NC
1,1,2-Trichloroethane	0.63656 u	1.27313 u	NC
1,1-Dichloroethane	0.54026 u	1.08052 u	NC
1,1-Dichloroethene	0.5361 u	1.0722 u	NC
1,1-Dichloropropene	0.66562 u	1.33125 u	NC
1,2,3-Trichlorobenzene	0.56429 u	1.12857 u	NC
1,2,3-Trichloropropane	1.01002 u	2.02003 u	NC
1,2,4-Trichlorobenzene	0.66385 u	1.32771 u	NC
1,2,4-Trimethylbenzene	15 v	14 v	1.7
1,2-Dibromo-3-chloropropane	1.17167 u	2.34334 u	NC
1,2-Dibromoethane (EDB)	0.55887 u	1.11774 u	NC
1,2-Dichlorobenzene	2 u	4 u	NC
1,2-Dichloroethane (EDC)	0.57512 u	1.15024 u	NC
1,2-Dichloropropane	0.54914 u	1.09829 u	NC
1,3,5-Trimethylbenzene	6.5 v	7.1 J	2.2
1,3-Dichlorobenzene	0.71594 u	1.43188 u	NC
1,3-Dichloropropane	0.77859 u	1.55717 u	NC
1,4-Dichlorobenzene	0.71332 u	1.42665 u	NC
1-Methylnaphthalene	1.02203 u	2.04406 u	NC
2,2-Dichloropropane	0.8332 u	1.66639 u	NC
2-Butanone	3.68496 u	7.36993 u	NC
2-Chlorotoluene	2 u	4 u	NC
2-Hexanone	4.19934 u	8.39869 u	NC
2-Methylnaphthalene	0.79133 u	1.58266 u	NC
4-Chlorotoluene	0.64068 u	1.28135 u	NC
4-Isopropyltoluene	0.70306 u	1.40612 u	NC
4-Methyl-2-pentanone	2.13822 u	4.27645 u	NC
Acetone	24.5437 u	49.0874 u	NC
Benzene	100 v	110 v	2.4
Bromobenzene	0.48855 u	0.9771 u	NC
Bromodichloromethane	0.69890 u	1.39779 u	NC
Bromoform	0.51066 u	1.02131 u	NC
Bromomethane	3.89944 u	7.79889 u	NC
Carbon disulfide	2.98745 u	5.97489 u	NC
Carbon Tetrachloride	0.54102 u	1.08203 u	NC
VOCs - SW8260B (mg/L)			

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-54	DUP06	RPD %
	1609a26-004	1609a26-005	
	Sample Result	Duplicate Result	
Chlorobenzene	0.57225 u	1.1445 u	NC
Chloroethane	0.95512 u	1.91023 u	NC
Chloroform	0.44386 u	0.88772 u	NC
Chloromethane	1.06405 u	2.1281 u	NC
cis-1,2-DCE	0.62081 u	1.24163 u	NC
cis-1,3-Dichloropropene	0.53267 u	1.06533 u	NC
Dibromochloromethane	0.43367 u	0.86735 u	NC
Dibromomethane	0.59569 u	1.19139 u	NC
Dichlorodifluoromethane	1.7866 u	3.5732 u	NC
Ethylbenzene	29 v	29 v	0.0
Hexachlorobutadiene	0.99298 u	1.98597 u	NC
Isopropylbenzene	1.2 J	1.6 J	7.1
Methyl tert-butyl ether (MTBE)	2000 v	1900 v	1.3
Methylene Chloride	0.9371 u	1.87419 u	NC
Naphthalene	4.2 J	5.5 J	6.7
n-Butylbenzene	0.80199 u	1.60399 u	NC
n-Propylbenzene	3.7 J	3.8 J	0.7
sec-Butylbenzene	1.7 J	2.6 J	10.5
Styrene	0.55 u	1.1 u	NC
tert-Butylbenzene	0.57504 u	1.15008 u	NC
Tetrachloroethene (PCE)	0.76008 u	1.52015 u	NC
Toluene	8 v	9.8 J	5.1
trans-1,2-DCE	2 u	4 u	NC
trans-1,3-Dichloropropene	0.51635 u	1.0327 u	NC
Trichloroethene (TCE)	0.87547 u	1.75094 u	NC
Trichlorofluoromethane	1.02184 u	2.04369 u	NC
Vinyl chloride	0.97688 u	1.95376 u	NC
Xylenes, Total	28 v	31 v	2.5
Gasoline Range Organics (GRO)	3.2 v	3.4 v	1.5
Diesel Range Organics (DRO)	1.6 v	1.7 v	1.5
Motor Oil Range Organics (MRO)	5 u	5 u	NC
Dissolved Metals E200.7 (mg/L)			
Barium	0.14 v	0.14 v	0.0
Cadmium	0.00075 u	0.00075 u	NC
Chromium	0.00175 u	0.00175 u	NC
Copper	0.0088 v	0.0093 v	1.4
Iron	0.23 v	0.24 v	1.1
Manganese	1.3 Z	1.4 Z	1.9
Silver	0.00275 u	0.00275 u	NC
Zinc	0.0035 J	0.0035 J	0.0

Table A-3
Field Duplicate Summary
North Drainage Ditch and OW-29 and OW-30 Area
Western Refining Southwest, Inc. - Gallup Refinery

Parameter	OW-54	DUP06	RPD %
	1609a26-004	1609a26-005	
	Sample Result	Duplicate Result	
Total Metals E200.7 (mg/L)			
Barium	1.1 v	1.3 v	4.2
Cadmium	0.00148 u	0.00148 u	NC
Chromium	0.013 v	0.017 v	6.7
Copper	0.032 v	0.036 v	2.9
Iron	11 Z	14 Z	6.0
Manganese	2.3 Z	2.4 Z	1.1
Silver	0.00155 u	0.00155 u	NC
Zinc	0.036 v	0.039 v	2.0
Dissolved Metals E200.8 (mg/L)			
Arsenic	0.0049 J	0.0049 J	0.0
Lead	0.0052 v	0.0053 v	0.5
Selenium	0.0068 J	0.0083 J	5.0
Uranium	0.062 Z	0.063 Z	0.4
Total Metals E200.8 (mg/L)			
Arsenic	0.0057 J	0.0058 J	0.4
Lead	0.032 Z	0.036 Z	2.9
Selenium	0.0063 J	0.007 J	2.6
Uranium	0.065 Z	0.066 Z	0.4
Mercury E245.1 (mg/L)			
Mercury	0.00013 J	0.00013 J	0.0

NC - not calculated due to one or both results being non-detect

Table A-4
Completeness Summary
North Drainage Ditch and OW-29 OW-30 Area Investigation Report
Western Refining Southwest, Inc. - Gallup Refinery

	Parameter	Total Number of Results	Number of Usable Results	Percent Technical Compliance
TPH :	Diesel Range Organics (DRO)	49	49	100
	Motor Oil Range Organics (MRO)	49	49	100
	Gasoline Range Organics (GRO)	49	49	100
VOCs:	All VOC Analytes	49	49	100
SVOCs:	All SVOC Analytes	46	46	100
Metals (total):	All Skinner List metals	45	45	100
Metals (dissolved):	All Skinner List metals	10	10	100
Anions	sulfate, chloride, fluoride	7	7	100

Notes:

Number of samples used in completeness calculations includes soil samples and groundwater samples, excludes additional QC samples
Percent Technical Compliance = (Number of usable results / Number of reported results) * 100

Appendix J

Tank Farm Information

GALLUP TANK CAPACITY LIMITS

Updated 11/30/12

TANK	PRODUCT	SAFE FILL HEIGHT	BBLs TOTAL CAPACITY	APPROXIMATE LOW GAUGE	HEEL BBLs	OUTAGE GAUGE	BBL/FT	ROOF TYPE	SAFE LOW GAUGE
101	CRUDE	44-0	74,360	10-0	2,419	48-7 1/2	1690	INTERNAL FLOATING	15-0
102	CRUDE	44-0	74,360	1-7	2,678	53-10 1/2	1690	EXTERNAL FLOATING	6-0
105	RERUN OIL	13-6	216	0-8	13	15-6 1/4	16	CONE	
106	DHT FEED	30-0	4,680	0-8 5/8	100	32-8 1/2	156	CONE	
107	RERUN OIL	30-0	4,680	6-0	229	32-8 3/4	156	CONE	
108	RERUN OIL	27-0	4,368	1-4 5/8	216	32-8 3/4	156	INTERNAL FLOATING	4-0
111	DIESEL-RUNDOWN	30-0	4,680	0-11 3/8	137	32-9 1/8	156	CONE	
112	DIESEL-RUNDOWN	30-0	4,680	0-3 1/4	137	32-8 3/4	156	CONE	
115	DIESEL-RUNDOWN	30-0	4,680	3-9 1/4	582	32-8 1/4	156	CONE	
116	DIESEL-RUNDOWN	30-0	4,680	3-8 3/8	569	32-8 7/8	156	CONE	
225	DHT FEED	38-0	23,788	2-0 3/8	1,166	40-1 3/4	626	CONE	
226	DHT FEED	38-0	23,788	2-1 5/8	1,217	40-5	626	CONE	
227	DHT FEED	30-0	4,680	1-1 3/4	176	32-11 5/8	156	CONE	
228	DHT FEED	30-0	4,680	1-6 7/8	229	33-3 1/2	156	CONE	
231	TRANSMIX	30-0	4,680	0-8 1/2	98	32-8 1/4	156	CONE	
232	TRANSMIX	30-0	4,680	0-8	98	32-9	156	CONE	
235	SOUR NAPHTHA	30-0	4,680	1-1	107	32-8 1/4	156	CONE	
337	SOUR NAPHTHA	36-0	19,000	2-6	923	42-0	500	INTERNAL FLOATING	5-0
338	SWEET NAPHTHA	38-0	23,788	1-3 7/8	778	40-8 3/4	626	CONE	
339	SOUR NAPHTHA	38-0	23,826	0-11 3/4	567	41-1 7/8	627	CONE	
342	ETHANOL	30-0	4,680	1-1 3/4	176	32-8 3/8	156	CONE	
343	ETHANOL	30-0	4,680	1-2 3/8	176	32-8 3/4	156	CONE	
344	OUT-OF-SERVICE	38-0	19,000	2-4	1,167	42-7 1/2	500	INTERNAL FLOATING	5-0
345	REFORMATE BLENDSTOCK	36-0	19,000	2-1 3/4	1,295	42-5 5/8	500	INTERNAL FLOATING	5-0
451	OUT-OF-SERVICE	14-0	882	4-0	81	16-8 1/4	63	CONE	
452	OUT-OF-SERVICE	14-0	882	4-0	61	16-9 1/4	63	CONE	
453	OUT-OF-SERVICE	30-0	4,680	4-0		32-9 1/4	156	CONE	
567	83.0 UNLEADED REGULAR	35-0	17,500	1-4 1/2	629	40-0	500	EXTERNAL FLOATING	5-0
569	LT CAT GASOLINE BLENDSTOCK	37-0	22,977	1-1	619	40-0	621	EXTERNAL FLOATING	5-0
570	83.0 UNLEADED REGULAR	37-0	22,977	1-1	619	40-0	621	EXTERNAL FLOATING	5-0
571	89.0 UNLEADED REGULAR	37-0	22,977	1-1	619	40-0	621	EXTERNAL FLOATING	5-0
572	89.0 UNLEADED REGULAR	37-0	22,977	1-1	619	40-0	621	EXTERNAL FLOATING	5-0
573	OUT-OF-SERVICE	12-0	168	0-9		40-0	14	CONE	
574	STRAIGHT RUN GASOLINE	37-5	37,304	3-1	1,108	40-0	997	EXTERNAL FLOATING	6-0
575	DIESEL-ULSD	38-0	9,576	4-0	1,012	40-9 5/8	252	CONE	
576	OUT-OF-SERVICE	37-5	37,304	3-1	2,118	40-0	997	EXTERNAL FLOATING	6-0
577	DIESEL-ULSD	38-0	9,576	0-11 3/4	216	40-9	252	CONE	
579	DIESEL-ULSD	38-0	19,114	1-8	796	40-8 7/8	503	CONE	
581	DHT FEED	35-0	23,788	2-5	1,531	40-9 1/8	626	INTERNAL FLOATING	5-0
582	83.0 UNLEADED REGULAR	35-0	21,910	1-8	955	40-9 5/8	626	INTERNAL FLOATING	5-0

GALLUP TANK CAPACITY LIMITS

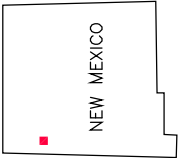
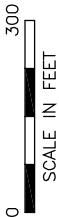
Updated 11/30/12

TANK	PRODUCT	SAFE FILL HEIGHT	BBLs TOTAL CAPACITY	APPROXIMATE LOW GAUGE	HEEL BBLs	OUTAGE GAUGE	BBL/FT	ROOF TYPE	SAFE LOW GAUGE
583	DIESEL-JULSD	34-0	47,430	3-7	3,334	42-1 1/4	1400	INTERNAL FLOATING	
554	OLEFINS	9-9	2,033	0-5 1/2	30	10-10	-	BULLET	6-0
555	ISO-BUTANE	9-9	2,033	0-5	26	10-10	-	BULLET	
556	PROPANE	8-2	673	0-8	21	9-3	-	BULLET	
557	PROPANE	8-2	673	0-8	21	9-3	-	BULLET	
560	BUTANE	10-0	1,367	0-8	31	11-9	-	BULLET	
561	BUTANE	10-0	1,367	0-9	38	11-9	-	BULLET	
562	ALKYLATE BLENDSTOCK	46-0	20,241	1-8	395	52-1 3/4	500 *	ELLIPSOID	
563	REFORMATE BLENDSTOCK	46-0	20,277	3-6	422	51-7 1/2	500 *	ELLIPSOID	7-0
564	NATURAL GASOLINE	38-0	4,967	0-9 7/8	277	48-6 1/4	126	ELLIPSOID	
565	REFORMATE BLENDSTOCK	38-0	4,963	1-4	339	48-6 1/4	126	ELLIPSOID	
446	OLEFINS	8-0	678	0	0	8-10	-	BULLET	
447	ISO BUTANE	10-0	1,367	0-2 1/2	3	11-9	-	BULLET	1-0
448	ISO BUTANE	10-0	1,367	0-4	11	11-9	-	BULLET	1-0
701	FCC FEED	31-0	33,821	0-11 1/2	971	34-11 1/4	1091	CONE	
702	OUT-OF-SERVICE	39-0	24,492	0-11	568	41-1	628	CONE	
703	FCC FEED	38-0	23,902	0-9 1/4	570	40-3 1/4	629	CONE	
704	FCC FEED	30-0	9,420	0-9 1/2	215	31-0 1/2	314	CONE	
705	FCC FEED	30-0	9,375	0-11 1/2	591	32-3	312-5	CONE	
706	FUEL OIL	30-0	9,450	2-6	593	32-4 5/8	315	CONE	
707	OUT-OF-SERVICE	16-0	944	1-2	55	17-10 1/2	59	CONE	
708	OUT-OF-SERVICE	13-0	910	1-2	66	15-2	70	CONE	
709	OUT-OF-SERVICE	13-0	936	0-11 3/4	66	15-1 1/4	72	CONE	
713	OUT-OF-SERVICE	15-0	-	-	-	17-8	-	CONE	
714	FCC FEED	38-0	28,500	0-9 1/8	673	40-9 1/2	750	CONE	
1	DIESEL-JULSD	22-3	2,803	1-2	252	24-9 5/8	126	INTERNAL FLOATING	6-0
2	83.0 UNLEADED REGULAR	29-11	3,769	2-8	257	35-1 3/4	126	INTERNAL FLOATING	6-0
3	89.0 UNLEADED REGULAR	29-11	3,769	1-2	256	35-1 1/8	126	INTERNAL FLOATING	6-0
4	83.0 UNLEADED REGULAR	28-9	3,507	6-5 7/8	253	35-2 1/4	122	INTERNAL FLOATING	6-0
5	ETHANOL	24-0	1,536	1-2	129	28-7	64	CONE	6-0
6	ETHANOL	22-0	1,419	0-10 1/4	53	28-5	64	INTERNAL FLOATING	4-0
7	ISOMERATE	4-10	274	1-4	0	6-3	-	BULLET	
568	OUT-OF-SERVICE	19-0	1659	2-0	77	24-8 3/4	86	INTERNAL FLOATING	5-0
117	JP-8 DEICER	14-0	196	0-6	-	16-9	14	CONE	

* BBL/FT IN THE STRAIGHT SIDEWALL SECTION

** AVOID LOW GAUGE BELOW THIS LEVEL WITHOUT APPROVAL

*** LPG TANKS THAT CAN'T BE GAUGED FOR AUDITING PURPOSES



GALLUP SITE LOCATION

LEGEND

- NDD-1 SOIL BORING LOCATION AND IDENTIFICATION NUMBER
- NDD-1 TEMPORARY MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- OW-14 ALLUVIUM / CHINLE GP MONITORING WELL LOCATION AND IDENTIFICATION NUMBER



MARATHON PETROLEUM COMPANY
GALLUP REFINERY

PROJ. NO.: Marathon | DATE: 4/16/19 | FILE: Mathon-dB212

TANK FARM

TANK IDENTIFICATION NUMBERS



8501 N. MoPac Expy.
Suite 300
Austin, Texas 78759