

WESTERN REFINING SOUTHWEST, LLC

STAGE 2 ABATEMENT PLAN FORMER GIANT BLOOMFIELD REFINERY

MAY 18, 2021



wsp



STAGE 2 ABATEMENT PLAN

FORMER GIANT BLOOMFIELD REFINERY

WESTERN REFINING SOUTHWEST, LLC

PROJECT NO.: 31403103.000.295

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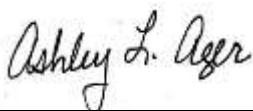
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1 INTRODUCTION

This *Stage 2 Abatement Plan* has been prepared by WSP USA Inc. (WSP) on behalf of Western Refining Southwest, LLC (Western). This plan is being prepared as part of the provisions included with Discharge Permit GW-40 for the former Giant Bloomfield Refinery (the Site) located in San Juan County, New Mexico (Figure 1). The purpose of this plan is to assess current groundwater conditions at the Site and provide abatement options that will result in the attainment of abatement standards, as set forth in this document. This document summarizes the Site history, investigation and remediation activities that have been completed to date, current groundwater conditions, an evaluation of Site-specific contaminants of concern, and abatement options to address residual groundwater contaminants remaining at the Site.

1.1 SITE DESCRIPTION

The Giant Bloomfield Refinery Site is a former refinery currently owned by Western. It is located on the northeast corner of United States Highway 64 and County Road 3500, approximately 5 miles west of Bloomfield, New Mexico, in the southwest quarter of Section 22 and the northwest quarter of Section 27, Township 29 North, Range 12 West in San Juan County, New Mexico (Figure 1). The former refinery, under ownership of Giant Industries (Giant), Arizona, produced leaded and unleaded gasoline, diesel, kerosene, and other refined petroleum products from 1974 to 1982 and has been inactive since closure in 1982.

1.1.1 LAND AND WATER USE

The land in the vicinity of the Site is largely public land used as open rangeland for livestock and wildlife. Other uses of land in this area include: the Lee Acres Landfill Superfund site on public land north of the Site managed by the United States Bureau of Land Management (BLM) which is currently unoccupied; a residential neighborhood, Lee Acres Subdivision, to the south of the Site and across State Highway 64; and the San Juan County Fairgrounds located to the southwest of the Site (west of Lee Acres Subdivision). There are no schools, prisons, or hospitals within one mile of the site.

Surface water runoff in the vicinity of the Site drains to the unnamed arroyo located west-adjacent to the Site. This arroyo system ultimately flows to the San Juan River located approximately one mile south of the Site. Shallow groundwater at the Site is located within Quaternary alluvial sediments that have accumulated in a bedrock paleochannel underlying the arroyo. Currently, there are no known uses of the shallow groundwater in the area. The subdivision and Fairgrounds use municipal water.

1.2 SITE HISTORY

In April 1985, a breach in a lagoon dike on the former Lee Acres Landfill property (located north-adjacent to the Site and further discussed in Section 1.1.2), which had been retaining liquids in the lagoons, released liquid wastes into an arroyo west of the Site. The arroyo drains south toward the Lee Acres Subdivision (located south-adjacent to the Site), where the New Mexico Oil Conservation Division (NMOCD) and the New Mexico Environment Department (NMED) identified impacted groundwater in domestic water wells in 1986. In response, the NMOCD required Giant to investigate petroleum hydrocarbon impacts to groundwater downgradient of the refinery. NMED also conducted a separate investigation to identify potential impacts from the landfill. The investigations identified two separate plumes of impacted groundwater that commingled across the Site and flowed downgradient into the Lee Acres Subdivision. Groundwater contaminants detected in the refinery plume included phase-separated hydrocarbon (PSH) and dissolved-phase petroleum hydrocarbons (described below). Groundwater contaminants associated with the Lee Acres Landfill included total dissolved solids (TDS), chloride, sulfate, metals, and volatile organic compounds, as discussed in Section 1.1.2 below.

Geoscience Consultants, Ltd. (GCL), environmental consultants retained by Giant, concluded that releases had occurred at the Site related to refining operations and subsequent truck loading and unloading activities. Specifically, the investigations identified the following three source areas contributing to the groundwater plume at the Site (Figure 2):

- Northern Area (Diesel Spill Area): diesel fuel was released from a pipeline in 1985;
- Central Area (Truck Fueling Area): a separate diesel fuel release occurred from a pipeline in 1986; and
- Southern Area (Former Seep and Stormwater Catchment Area): Fire training area where water was used to extinguish flames.

Details of a subsurface investigation and initial remediation efforts conducted by Giant are summarized below and details are contained in a 1987 report prepared by GCL titled *Soil and Ground Water Investigations and Remedial Action Plan*.

1.2.1 SITE INVESTIGATION AND REMEDIATION ACTIVITIES

During the initial investigations at the Site, Giant performed several rounds of drilling and soil-sampling activities to delineate soil and groundwater impacts. Based on the results, Giant excavated all accessible petroleum-hydrocarbon contaminated soil at the Site in the spring of 1986. In total, approximately 4,500 cubic yards of soil were excavated from several areas at the Site as an immediate remedial measure. Once complete, confirmation-soil samples were collected from the open excavations to assess remaining soils. Impacted soils were removed from several areas at the Site, with soil results from the excavation floors and sidewalls complying with applicable closure standards. Results from the remedial excavations are presented in the 1987 GCL report. A portion of the Southern Area (shown on Figure 2) could not be excavated. The remaining soils were to be addressed by applying water to the impacted area (through an infiltration gallery), effectively flushing residual petroleum contaminants from the soil and into the shallow groundwater where they could be removed through the use of groundwater-recovery wells (further described below).

Beginning in 1988, Giant installed a groundwater recovery, treatment, and disposal system to restrict migration of contaminants and to remediate groundwater impacts caused by Giant's former operations. A total of 45 monitoring wells were initially installed and designated "GBR" monitoring wells (Figure 2). Of these 45 monitoring wells, 11 were converted to recovery wells and re-named with "GRW" designations. An additional 17 monitoring wells were installed downgradient in the Lee Acres Subdivision and designated as "SHS" monitoring and recovery wells. Four SHS wells initially operated as recovery wells. Giant pumped groundwater from the recovery wells into storage tanks, treated the groundwater with an air stripper and carbon filtration, and re-injected treated groundwater into the subsurface through an infiltration gallery. The initial discharge permit for the Site was approved by the NMOCD in 1988 and the Site was assigned Discharge Permit Number GW-40.

1.2.2 ADJACENT LEE ACRES LANDFILL SUPERFUND SITE

Concurrent with refinery operations, the former Lee Acres Landfill (located upgradient of the Site) operated as a San Juan County landfill from 1962 to 1986 (Figure 1). Landfill operations included solid waste disposal in trenches and liquid waste disposal in a series of lagoons. The NMOCD sampled the lagoons in 1985 and demonstrated that the liquids in the impoundments contained a variety of chlorinated solvents, petroleum hydrocarbon constituents, heavy metals, and salts. As stated above, a breach in the lagoon dike occurred in 1985 and released liquid wastes into an arroyo west of the Site, prompting an investigation by the NMED in conjunction with the BLM and United States Geological Survey (USGS).

Initial investigations conducted by the NMED, BLM, and USGS identified that contaminants originating from the landfill included TDS, chloride, sulfate, manganese, heavy metals, BTEX constituents (benzene, toluene, ethylbenzene, and xylenes), naphthalene, 1,1-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene (PCE), 1,1,1-trichloroethane, trichloroethene (TCE), and vinyl chloride. Comprehensive investigation results for the Lee Acres Landfill site are summarized in the Remedial Investigation (RI) Report (BLM, 1992).

The Record of Decision (2004) for the landfill release, prepared by the United States Environmental Protection Agency (EPA) using data from NMED, BLM, and USGS investigations, presented human health and ecological risk assessments and remedial action objectives (RAOs) for soil and groundwater pathways of exposure. Based on the risk assessments, identified RAOs, and background concentrations established for the landfill release, the Record of Decision identified manganese, nickel, 1,2-dichloroethene, trans-1,2-dichloroethene, PCE, TCE, and vinyl chloride as the contaminants of concern (COCs) for the Lee Acres Landfill Superfund site. Other constituents associated with the landfill, including chloride, chromium, iron, sulfate, and TDS, were determined to be either within natural “background” concentrations or did not present a human health or ecological risk. Based on these results, the Record of Decision outlined the selected remedies to remediate and/or manage residual soil and groundwater contamination originating from the Lee Acres Landfill site and included landfill cover, surface water controls, monitored natural attenuation for groundwater contaminants, and institutional controls (withdrawing the landfill and surrounding BLM land from settlement, sale, location, or entry).

Currently, the BLM continues to monitor the landfill cover and surface water controls, as well as monitor groundwater conditions in several monitoring wells associated with the Superfund site. The BLM prepares reports every five years following the implementation of the *Record of Decision* (ROD) in 2004 and summarizes monitoring results and provides recommendations for any actions needed at the site. According to the most recent five-year review, manganese is the only remaining groundwater contaminant present at concentrations exceeding the groundwater-quality standard specified in the ROD. As such, the BLM is currently conducting additional groundwater monitoring at the Superfund site to further assess the presence of manganese in groundwater.

1.3 SITE GEOLOGY AND HYDROGEOLOGY

The Site is located on weathered outcrops of the Nacimiento Formation, which is comprised of shales, sandstones, and siltstones of Cretaceous-Tertiary age. The San Juan River is approximately 2,000 feet south of the Site. Immediately west is a large unnamed arroyo, which is underlain by 30 feet to 60 feet of Quaternary alluvial sediments. Older Quaternary terrace deposits of cobbles and boulders were observed on the interfluvial ridges adjacent to the arroyo. These terrace deposits may have been used as fill on the Site. The outcropping surfaces of the Nacimiento Formation have been eroded to form a paleochannel that appears to be similar in morphology to the existing surface arroyo located to the west of the Site. The bedrock is overlain by recent alluvial deposits (gravel, sand, silt, and clay), which thicken toward the south-southwest as illustrated on the cross sections on Figures 3 and 4.

The subsurface geology is a controlling feature for groundwater flow direction and potential contaminant migration. Shallow groundwater is generally unconfined. There are two aquifers of concern that are in direct hydraulic communication: a shallow aquifer composed of recent alluvial materials contained within the bedrock paleochannel, and a bedrock aquifer that exists in the underlying Nacimiento Formation (Figures 3 and 4, respectively). The alluvial aquifer generally has the higher permeability of the two aquifers, and recovery wells completed within this aquifer have higher yields than wells completed in the bedrock aquifer.

2 HISTORICAL GROUNDWATER REMEDIATION

2.1 HISTORICAL REMEDIATION SYSTEM AND MONITORING

Beginning in 1988, Giant had installed, operated, and maintained the groundwater remediation system at the Site. In June 2007, Western Refining Southwest, LLC (Western) acquired the Site from Giant and continued to operate a modified remediation system. As groundwater quality improved over time, adjustments to the remediation system were made to optimize areas of residual hydrocarbon impacts. The air stripper was eliminated in the 1980s once product accumulation declined. In 2008, Western conducted a supplemental evaluation of the remedial operations, which included shutting down the remediation system and sampling groundwater wells under static conditions to redefine the area of impact and assess effectiveness of the remediation system. Existing equipment was inspected and repaired to optimize performance. Results from the sampling event were included in the *2008 Annual Report* prepared by LT Environmental, Inc. (LTE, now WSP) and submitted to the NMOCD. Pumping and treating operations were resumed in February 2009.

With approval from the NMOCD, Western stopped recovering groundwater south of Highway 64 in 2009, as groundwater sampling results indicated no change to contaminant concentrations. Additionally, aboveground storage of groundwater was eliminated in 2014 based on reduced groundwater recovery volumes. By 2015, the system consisted of only 9 active groundwater recovery wells that pumped groundwater directly into the carbon filtration tanks, with the treated effluent discharged into the water infiltration trench.

2.1.1 REMEDIATION SYSTEM SHUTDOWN

Prior to August 2015, the groundwater recovery system had been in operation for approximately 27 years and had significantly improved groundwater conditions over that time. During operation, treated groundwater was discharged through infiltration trenches located on the GBR property. During operation, water entering (influent) and exiting (effluent) the remediation system was sampled and analyzed for volatile organic compounds (VOCs) in order to assess the efficacy of the system and monitor compliance with the Site discharge permit. Following 13 years of regular sampling without the detection of VOCs, Western conducted another extensive assessment of site groundwater conditions in 2015. Western sampled and monitored select wells to characterize groundwater under active pumping conditions, then shut down the recovery system to allow groundwater to equilibrate. A second sampling and monitoring event was conducted on the same groundwater monitoring wells to compare active groundwater recovery to post-shutdown static conditions.

In August 2015, additional groundwater samples were collected from select monitoring wells to establish a reference for groundwater conditions when the remediation system was operational. Historical documentation was reviewed to determine which wells had the most potential to contain impacted groundwater or to exhibit a change in water quality before and after groundwater recovery and infiltration was inactivated. Monitoring wells GBR-8, GBR-11, GBR-20, GBR-21D, GBR-22, GBR-25, GBR-26, GBR-34, SHS-2, SHS-8, and SHS-9 were selected due to radius of influence of actively pumping recovery wells and/or historical documentation of PSH measured in the monitoring wells. Samples from these monitoring wells were collected and analyzed for chloride, BTEX, total petroleum hydrocarbon (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO). Follow-up samples were collected after the system was turned off and groundwater conditions were allowed to equilibrate.

Assessment results showed that the remediation system had successfully remediated the groundwater impact it was originally designed to address but was no longer an effective method for remediating residual impacts at the Site. The investigation additionally confirmed the residual impacts were stable and not migrating even with the recovery system inoperable. As such, Western did not turn the recovery system back on, focusing instead on monitoring existing site conditions to better characterize the residual impact. Results of the assessment were included in the *2015 Annual Report* prepared by LTE (dated March 2016). Sampling from these monitoring wells under equilibrium conditions continued in March, July, and October of 2016 and were documented in the *2016 Annual Report* (LTE, March 2017). Components of the former remediation system still on Site include two control buildings, two carbon

filtration tanks, an aboveground storage tank, infiltration trenches, groundwater monitoring wells, and groundwater recovery wells (locations shown on Figure 2).

2.1.2 SHS SYSTEM ABANDONMENT

At the request of the New Mexico Department of Transportation (NMDOT), Western submitted Well Plugging Plans of Operations to the New Mexico Office of State Engineer (NMOSE) to plug and abandon SHS-1, SHS-2, SHS-3, SHS-4, and SHS-5 on June 5, 2017, approved on June 7, 2017. These wells were in the right-of-way of the highway and in the way of pending construction. On June 14, 2017, each well was cemented to the surface and the well vault was removed per the NMOSE requirements. Sampling and Plugging and Abandonment (P&A) activities were documented in the *2017 Annual Report* (LTE, 2018a).

Western conducted semi-annual gauging and annual compliance sampling at the Site in 2018. Results from these activities were documented in the *2018 Annual Report* (LTE, 2018b). Based on historical groundwater conditions and sample results for wells in the SHS area (results below applicable New Mexico Water Quality Control Commission standards), additional sampling was conducted with the intent of plugging and abandoning the monitoring and recovery wells associated with the SHS recovery and monitoring system. Western submitted a *Partial Remediation System Closure Approval Request* (dated November 27, 2018) to NMOCD with the results of the additional sampling and the request to plug and abandon wells SHS-6, SHS-8, and SHS-14 through SHS-19 (wells SHS-9 and SHS-13 were left in place for future monitoring). NMOCD granted approval of the closure plan in an email dated May 9, 2019. Results of the P&A work are included in the 2019 Annual Report.

2.2 ONGOING GROUNDWATER MONITORING

Although no discharge has occurred on the Site since 2015, Western has continued to conduct annual compliance sampling in accordance with Discharge Permit GW-040. Specifically, groundwater is collected from wells GRW-3, GRW-6, GBR-17, GBR-24D, GBR-30, GBR-31, GBR-32, GBR-48, GBR-49, GBR-50, GBR-52, and SHS-9 and analyzed for one or more of the following: VOCs, polycyclic aromatic hydrocarbons (PAHs), general water chemistry parameters, anions/cations, and several metals. Western also has continued to collect depth to groundwater measurements semi-annually in 45 groundwater monitoring/recovery wells to monitor potential migration of PSH. Annual reports summarizing the sampling and gauging activities are submitted to NMOCD.

2.3 UPDATED DISCHARGE PERMIT

In May of 2020, Western submitted an updated *Discharge Permit Application* to the NMOCD for review and approval. The updated permit application was prepared in response to conversations with the NMOCD regarding the current conditions at the Site. The permit was approved by the NMOCD on January 6, 2021 with general provisions and conditions of approval. As part of the general provisions outlined in the permit, Western was required to prepare an updated Stage 2 Abatement Plan (this document) to assess current site-wide groundwater conditions and to modify the remediation strategy to focus on residual groundwater and potential vadose zone impacts at the Site.

2.4 HISTORICALLY DETECTED CONTAMINANTS

Data collected between 1986 and 2021 have been reviewed to assess what contaminants have been historically detected at the Site. Historical monitoring reports were reviewed for the Site, with results compiled for monitoring events every approximately five years. Results were compiled for all sampled wells from the following years (where available): 1986, 1988, 1995, 2000, 2005, 2010, 2015, 2019, and 2021. Based on a review of these results, the following have been historically and/or recently detected above laboratory practical quantitation limits (PQLs) at the Site and have been retained for further consideration (described in Section 4.0):

- **Phase Separated Hydrocarbons (PSH)**

- **Volatile Organic Compounds (VOCs):** BTEX, 1,2,4-trimethylbenzene, 1,2-dichloroethane (EDC), 1,2-dibromoethane (EDB), 1-methylnaphthalene, 2-methylnaphthalene, acetone, bromodichloromethane, bromoform, 2-butanone, carbon disulfide, chlorobenzene, chloroform, cis-1,2-dichloroethene, cis-1,3-dichloropropene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloropropane, isopropylbenzene, methylene chloride, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, tetrachloroethene (PCE), trans-1,2-dichloroethene, 1,1,1-trichloroethene, trichloroethene (TCE), and trichlorofluoromethane;
- **Polycyclic Aromatic Hydrocarbons (PAHs):** 1-methylnaphthalene/2-methylnaphthalene/naphthalene as total naphthalenes, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene;
- **Metals:** Arsenic, barium, beryllium, cadmium, chromium, iron, lead, manganese, mercury, nickel, selenium, silver, and thallium;
- **General chemistry constituents:** chloride, fluoride, nitrate/nitrite, sulfate, and total dissolved solids.

3 2021 GROUNDWATER ASSESSMENT

3.1 SITE WIDE GROUNDWATER SAMPLING ACTIVITIES

To assess current groundwater conditions across the Site and determine contaminants of potential concern, WSP sampled all viable groundwater monitoring/recovery wells associated with the GBR Site in the spring of 2021. Well construction information for the following wells is presented in Table 1.

- GRW-1, GRW-2, GRW-3, GRW-4, GRW-5, GRW-6, GRW-9, GRW-10, GRW-11, GRW-12, GRW-13, GBR-5, GBR-7, GBR-8, GBR-9, GBR-10, GBR-11, GBR-13, GBR-15, GBR-17, GBR-18, GBR-20, GBR-21S, GBR-21D, GBR-22, GBR-23, GBR-24S, GBR-24D, GBR-25, GBR-26, GBR-30, GBR-31, GBR-32, GBR-33, GBR-34, GBR-35, GBR-39, GBR-40, GBR-41, GBR-48, GBR-49, GBR-50, GBR-52, SHS-9, and SHS-13.

Of the Site wells listed above, the following wells were not sampled due to damage/obstructions or lack of water in the well (as indicated on Table 2):

- GBR-10, GBR-19, GBR-21S, GBR-23, GBR-24S, GBR-26, GBR-33, GBR-40, GBR-41, and GBR-49.

The following sections summarize the sampling procedures and results gathered during these 2021 sampling events.

3.1.1 GROUNDWATER LEVEL MEASUREMENTS

Prior to collection of groundwater samples, depth to groundwater in each well was measured using a Keck oil/water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement to prevent cross-contamination. Groundwater elevations measured in 2020 and 2021 detailed in Table 2.

A groundwater potentiometric surface map was prepared based on the depth-to-water information and is presented on Figure 5. The groundwater potentiometric surface elevations collected in 2021 were consistent with past sampling/gauging events. The inferred groundwater-flow direction is to the south following the path of the unnamed arroyo with an approximate hydraulic gradient of 0.017 feet/foot.

3.1.2 SITE GROUNDWATER SAMPLING

Site wells were sampled in January, February, and March of 2021. Prior to sampling, groundwater was purged using a disposable bailer and/or submersible pump. Purging was accomplished by removing three well-casing volumes of groundwater from the monitoring wells prior to collecting a sample. If the well purged dry, groundwater was allowed to infiltrate back into the well prior to sampling. Field measurements of groundwater quality parameters, including temperature, pH, electrical conductivity, dissolved oxygen, and oxidation-reduction potential, were also collected and are presented in Table 3.

Following well purging, groundwater samples were collected and placed directly into laboratory-provided bottles and labeled with the date and time of collection, well designation, project name, sample collector's name, and parameters to be analyzed. Sample bottles were immediately sealed, packed on ice, and submitted to Hall Environmental Analysis Laboratory (Hall) for analysis. Analyzed constituents were based on historical results and the contaminants summarized in Section 2.4 above. All site wells were analyzed during this event for constituents listed in Table 4 and included VOCs, PAHs, total metals, and general chemistry constituents. Proper chain-of-custody procedures were followed documenting the date and time sampled, sample number, type of sample, sample collector's name, preservative used, analyses required, and sample collector's signature. Analytical laboratory reports from the 2021 sampling events are included as Appendix A.

3.1.3 SITE GROUNDWATER SAMPLING RESULTS

Based on groundwater-quality parameters measured during sampling, groundwater located within and directly downgradient of the contaminant plumes is generally low in dissolved oxygen with negative oxidation-reduction

potential values ranging down to -343.0. These anoxic conditions are common in groundwater where microbial-degradation processes are occurring. Areas upgradient of and at the downgradient distal end of the contaminant plumes (e.g., GBR-18, GBR-52, etc.) generally have higher dissolved oxygen concentrations and positive oxidation-reduction potentials indicative of oxic groundwater conditions.

Analytical results for the 2021 sampling event are presented in Tables 5 through 8 and summarized for each contaminant suite below. For comparison purposes, Tables 5 through 8 include NMWQCC groundwater quality standards, EPA Regional Screening Levels (RSLs), and site-specific background concentrations (discussed in Section 3.2), as well as background concentrations and remedial goals established for the Lee Acres Landfill Superfund (in their ROD) site located upgradient of GBR.

- **PSH:** PSH was encountered in wells GBR-7 and GBR-22 with thicknesses of 0.11 and 0.10 feet, respectively. No other wells contained PSH during the 2021 sampling event.
- **VOCs:** Benzene was detected in wells GBR-11 and GBR-20 at concentrations exceeding NMWQCC standard of 5 micrograms per liter (µg/L). No other VOC constituents were detected above applicable NMWQCC and/or EPA standards during the 2021 sampling event. A summary of analytical results is presented in Table 5.
- **PAHs:** Naphthalene, 1-methylnaphthalene, and 2-methynaphthalene were detected at concentrations exceeding NMWQCC and EPA standards in well GBR-35. No other PAH constituents were detected above applicable NMWQCC and/or EPA standards during the 2021 sampling event. A summary of analytical results is presented in Table 6.
- **Total Metals:** Total concentrations of barium, chromium, iron, lead, manganese, and nickel were detected above NMWQCC standards in one or more wells analyzed during the 2021 sampling event. Concentrations of arsenic, beryllium, cadmium, mercury, selenium, silver, and thallium were either detected below NMWQCC standards or were below laboratory PQLs. A summary of analytical results is presented in Table 7.
- **General Chemistry:** Chloride, sulfate, and TDS were detected in several wells at concentrations exceeding NMWQCC standards. Fluoride concentrations were detected in several wells but below NMWQCC standards. Additionally, nitrate + nitrite (as nitrogen) were detected in several wells. Although there are standards for both nitrate and nitrite in 20.6.2.3103 NMAC, these constituents have historically been sampled as a combined fraction and not individually. A summary of analytical results is presented in Table 8.

3.2 UPGRAIDENT BLM SPLIT SAMPLING AND RESULTS

In addition to the Site-wide sampling described above, WSP was present and collected split groundwater samples during a BLM investigation conducted in April 2021. Specifically, as part of their effort to assess residual manganese concentrations related to the Lee Acres Landfill Superfund site, the BLM conducted groundwater sampling from several GBR Site wells on April 6, 2021. WSP was present during sampling and collected split samples from the following wells: GBR-17, GBR-32, GBR-48, and GBR-50. Samples were collected using low-flow purging and sampling methods. Specifically, groundwater was purged using a stainless-steel, impeller-driven submersible pump connected to a low-flow controller. Groundwater was routed through a flow-through cell and geochemical parameters were monitored and recorded using a multiparameter probe. Groundwater samples were collected into laboratory-provided containers once parameters had stabilized. Samples were submitted to Hall for analysis of total and dissolved metals and general chemistry constituents (chloride, fluoride, nitrate + nitrite, sulfate, TDS, and dissolved organic carbon), with results presented on Table 9 and laboratory reports attached as Appendix B.

3.2.1 EVALUATION OF SAMPLING TECHNIQUES

Based on the historical nature of the Site, an analysis of the methods utilized for monitoring requirements in the discharge permit were evaluated for applicability, specifically for the purpose of this *Stage 2 Abatement Plan*. The original methods were initiated 32 years ago. Not only have methods improved since that time, the purpose of the Site work has changed from extensive remediation to polishing of residual impacts and confirmation sampling of groundwater.

Historically, groundwater at the Site has been collected using a bailer and purged by removing three well-casing volumes of water prior to sampling. This method of sampling can bias sampling results high for inorganic and strongly hydrophobic constituents due to “increased turbidity that occurs during the deployment of the bailer” (EPA, 2002). Additionally, based on the original and subsequent discharge permits obtained for the Site, total metals have historically been analyzed during annual sampling. Generally, total metals concentrations will be similar or greater than dissolved metals concentrations analyzed from the same sample. Because of these factors, WSP collected split samples during the BLM sampling event to assess potential concentration differences of inorganic constituents between bailer and low-flow sampling methods, as well as resultant concentration differences between total and dissolved metals analyzed from the same samples.

To assess differences between sampling methods, data from the January/February 2021 sampling event (using a bailer) were compared to data collected using low-flow methods (April 2021 sampling event). Depth-to-groundwater measurements were consistent between sampling events indicating that spring runoff and/or storm events likely did not affect the detected constituent concentrations. The relative percent difference (RPD) was calculated for each analyzed metal detected during the different sampling events using the following formula:

$$RPD (\%) = \frac{[low\ flow] - [bailer]}{\frac{[low\ flow] + [bailer]}{2}} \times 100$$

Negative RPD values indicate a decrease in concentration from bailer to low-flow sampling methods, with positive value indicating an increase in concentration. In general, total metals concentrations decreased when sampled using low-flow methods, with an average RPD of -66 percent (%) (RPD values are presented on Table 9).

To assess concentration differences between total and dissolved metals, results from the April 2021 sampling event were compared by calculating the RPD using the following formula:

$$RPD (\%) = \frac{[dissolved\ metal] - [total\ metal]}{\frac{[dissolved\ metal] + [total\ metal]}{2}} \times 100$$

Overall, dissolved metals concentrations were lower than total metals concentrations, with an average RPD of -112%.

4 PROPOSED CONTAMINANTS OF CONCERN

4.1 UPGRADIENT/BACKGROUND CONSTITUENTS

Background is defined in 20.6.2.7(B) NMAC as “the amount of ground water contaminants naturally occurring from undisturbed geologic sources or water contaminants which the responsible person establishes are occurring from a source other than the responsible person’s facility.” As stated in Section 1.2.2 above, several constituents detected at the Lee Acres Landfill Superfund site were determined to be within natural “background” concentrations and were eliminated as COCs for the Lee Acres Landfill Superfund site as addressed in the ROD (EPA, 2004). Specifically stated in the RI (BLM, 1992) and ROD, chloride, chromium, iron, sulfate, and TDS have been present within and downgradient of the Lee Acres Landfill at concentrations above NMWQCC standards since investigations were initiated in the 1980s. However, these constituents were eliminated as COCs for the Lee Acres site based on their assessment of background conditions and/or through the extensive risk analysis that was conducted as part of the RI (BLM, 1992). Although eliminated as COCs from the Lee Acres Landfill Superfund site, these constituents are still present in the groundwater at concentrations exceeding NMWQCC standards and can be attributed to natural background concentrations or sources other than the former GBR facility. In addition to these constituents, manganese is present in groundwater at concentrations above NMWQCC standards, as well as the background concentration established for the Lee Acres Landfill Superfund site. Because of this, manganese was retained as a COC for the Lee Acres site and is currently present in areas downgradient of the landfill and upgradient of the release areas at the GBR Site.

Altogether, chloride, chromium, iron, manganese sulfate, and TDS have long been detected at the GBR Site in wells located hydrogeologically upgradient of the source areas at the Site (GBR-32, GBR-48, GBR-49, and GBR-50 identified on Figure 2) and downgradient of the Lee Acres Landfill site. These constituents appear to be influenced by background and/or upgradient conditions at the Site as supported by the extensive investigations conducted for the Lee Acres Landfill Superfund site and GBR Site.

To better analyze background concentrations, WSP has performed a statistical analysis using EPA ProUCL software to develop background threshold values (or background concentrations) for the following inorganic constituents that are potentially migrating onto or naturally occurring at the Site: chloride, chromium, iron, manganese, sulfate, and TDS. As such, Table 10 presents the results of the statistical analysis and groundwater analytical results for these constituents detected between 2010 and 2021. Appendix C presents the assumptions and inputs used for the statistical analysis.

Dataset distributions and background threshold values (BTVs) were determined for the six constituents using ProUCL, version 5.1 based on data collected between 2010 and 2021 from 5 monitoring wells: GBR-18, GBR-32, GBR-48, GBR-49, and GBR-50. Non-detects were only observed in two analytes, chromium and iron, adding to less than 5% in each case. Non-detects for chromium and iron were replaced with PQLs prior to evaluating distributions and BTVs. BTVs calculated using non-detect estimation methods are also provided for comparison purposes.

ProUCL was used to determine if datasets were parametric (if they fit a normal, lognormal or gamma distribution) or non-parametric if the dataset did not follow a discernible distribution. Chloride and sulfate were found to be non-parametric, TDS followed a normal parametric distribution, while chromium, iron, and manganese followed both lognormal and gamma parametric distributions.

A 95% upper tolerance limit with 95% coverage (UTL95-95) was chosen as the appropriate statistic to determine BTVs as it is designed to provide coverage for 95% of all potential observations from the background population with a coverage of 0.95. As stated above, chloride and sulfate did not follow a discernible distribution, therefore the BTVs were set to the maximum values observed: 560 and 2,800 milligrams per liter (mg/L), respectively. The BTV for TDS was set to 4,599 mg/L, which is the normal UTL-95-95. Chromium, iron, and manganese were found to follow both lognormal and gamma distributions, therefore the BTVs were set to the lesser (more conservative) values based on gamma distributions: 1.29, 97.8, and 5.28 mg/L, respectively.

A summary of BTVs for each constituent is outlined below. In accordance with 20.6.2.3101(A)(2), the resultant BTVs for chloride, chromium, iron, manganese, sulfate, and TDS are proposed as background concentrations to further evaluate potential Site COCs.

- Chloride: 560 mg/L
- Chromium: 1.29 mg/L
- Iron: 97.8 mg/L
- Manganese: 5.28 mg/L
- Sulfate: 2,800 mg/L
- TDS: 4,599 mg/L

4.2 UPDATED CONTAMINANTS OF CONCERN

Contaminants of potential concern (COPCs) are defined by the EPA as constituents that are potentially present due to site-related activities and where data are sufficient quality for use in the quantitative risk assessment. To be considered a COPC, the contaminant in question must be from past activities related to the site and detected at concentrations above laboratory PQL. Based on the historically detected contaminants listed in Section 2.4, the following contaminants are considered Site COPCs because of their historical presence above laboratory PQLs and potential association with the on-Site petroleum hydrocarbon releases.

- **PSH**
- **VOCs:** benzene, toluene, ethylbenzene, xylenes, 1,2,4-trimethylbenzene, 1,2-dichloroethane (EDC), 1,2-dibromoethane (EDB), 1-methylnaphthalene, 2-methylnaphthalene, bromodichloromethane, bromoform, 2-butanone, carbon disulfide, isopropylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene;
- **PAHs:** 1-methylnaphthalene/2-methylnaphthalene/naphthalene as total naphthalenes, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene;
- **Metals:** barium, chromium, iron, lead, manganese, and selenium;
- **General chemistry constituents:** chloride, fluoride, nitrate/nitrite, sulfate, and TDS.

Contaminants of concern (COCs) proposed for the Site are a subset of the established COPCs. COCs include site-related contaminants that have been identified as potentially posing a risk to human health and environment because they exceed NMWQCC standards. Where NMWQCC standards have not been established, detected contaminant concentrations have been compared to the most stringent EPA Regional Screening Levels (RSLs) for tap water using a hazard quotient of 1.0 (for non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (for carcinogens). In addition to the NMWQCC standards and EPA RSLs, several inorganic constituents were compared to background concentrations established for the Site and discussed in Section 3.2. If site-related constituents exceed established standards or screening levels, they are then compared to background concentrations. If a constituent exceeds standards and background, it is considered a COC for the Site. Constituents must also be evaluated based on the source of the release. The sources of the releases associated with this *Stage 2 Abatement Plan* are diesel fuel, gasoline, and crude oil.

WSP evaluated contaminant concentrations in historical results using the same dates/range of data as described in Section 2.4, specifically data collected in years 1986, 1988, 1995, 2000, 2005, 2010, 2015, 2019, and 2021. Of the list of COPCs listed above, the following contaminants were detected in historical samples collected at the Site above applicable standards, RSLs, and/or background concentrations:

- **PSH**
- **VOCs:** BTEX and EDC;
- **PAHs:** 1-methylnaphthalene/2-methylnaphthalene/naphthalene as total naphthalenes;
- **Metals:** barium, chromium, iron, lead, manganese, and selenium;
- **General chemistry constituents:** chloride, fluoride, sulfate, and TDS.

Several of these constituents have historically been, but are no longer detected above applicable standards or RSLs based on results from recent sampling events and can be excluded as COCs:

- Toluene, ethylbenzene, and xylenes, EDC, fluoride (have not been detected above NMWQCC standards since the mid-1990s)
- Selenium (has not been detected above NMWQCC standards since 2015, and then only in upgradient well GBR-48)

The following additional constituents do not exceed background concentrations established in Section 3.2 above and can be excluded as COCs:

- Chromium, chloride, iron, and sulfate
- One concentration of TDS was detected above established background concentrations in upgradient well GBR-18 during the 2021 sampling event. Since this well is located upgradient of the Site, it is not attributable to the on-Site releases. Because of this, TDS can also be excluded as a COPC.

Barium was detected at a concentration of 2.7 mg/L, just above the NMWQCC standard (2.0 mg/L), in one well location during the 2021 sampling event. Barium has not been detected above the NMWQCC standard in any other wells at the Site during this or previous sampling events and is not a typical contaminant of concern associated with petroleum hydrocarbon releases. Due to the isolated incidence of detection and the constituent being unrelated to the Site releases, barium has been excluded as a COC.

The results of the evaluation above conclude the following COCs proposed for the Site:

- **PSH**
- **VOCs:** benzene;
- **PAHs:** 1-methylnaphthalene/2-methylnaphthalene/naphthalene as total naphthalenes;
- **Metals:** lead and manganese;

Several wells contain PSH at measurable levels. Section 20.6.2.3103(A)(3) NMAC states “non-aqueous phase liquid shall not be present floating atop of or immersed within ground water, as can reasonably be measured.” Based on this language, presence of detectable PSH must be eliminated at the Site. Based on our understanding of the historical releases, benzene and total naphthalenes are common constituents of petroleum hydrocarbons and often drive risk assessments at petroleum sites. Lastly, lead and manganese have been detected at the Site above applicable standards and/or established background concentrations. Although these constituents are not directly related to the diesel fuel releases, they can be brought into solution through changes in groundwater chemistry (i.e., low oxygen and reducing conditions) from natural biodegradation of the petroleum hydrocarbons.

4.3 PROPOSED CLOSURE STANDARDS FOR ESTABLISHED CONTAMINANTS OF CONCERN

Based on applicable groundwater standards and the background analysis described above, WSP proposes the following closure standards for the COCs:

- **PSH:** no measurable accumulation (NMWQCC standard)
- **VOCs:**
 - Benzene: 5 µg/L (NMWQCC standard)
- **PAHs:**
 - 1-methylnaphthalene/2-methylnaphthalene/naphthalene as total naphthalenes: 30 µg/L (NMWQCC standard)
- **Metals:**
 - Lead: 0.015 mg/L (NMWQCC standard)
 - Manganese: 5.28 mg/L (background concentration)

4.4 NATURE AND EXTENT OF IMPACTS

As described in Section 1.2 above, three historical releases of petroleum hydrocarbons originated from on the GBR Property in the areas shown on Figure 2. PSH and residual concentrations of benzene and total naphthalenes are likely attributable to the original Site releases. The presence of PSH generally indicates the presence of residual saturation of vadose zone soils in the vicinity of the affected wells. Based on the 1987 GCL report titled *Soil and Ground Water Investigations and Remedial Action Plan* (GCL, 1987), most impacted soils were removed by excavation in the 1980s following the initial Site investigations. However, impacted soil was not removed in one area located between GBR-7 and GBR-41. Based on the current presence of PSH and dissolved-phase petroleum constituents (i.e., benzene) in wells located in this area, soil impacts likely remain and are contributing to groundwater impacts within these wells. The PSH present within well GBR-22 also indicates that free-phase petroleum hydrocarbons remain in the soil near this well. However, nearby and downgradient wells do not contain PSH or elevated concentrations of petroleum constituents, suggesting that soil impacts may be limited and localized to the area around GBR-22.

Lead and manganese are not components of the Site fuel releases; however, these inorganic constituents can be brought into solution through changes in groundwater chemistry (i.e., low oxygen and reducing conditions) from natural biodegradation of the petroleum hydrocarbon. Based on the recently collected groundwater analytical data and the nature of these constituents, lead and manganese concentrations may be attributed to biodegradation in the saturated zone.

Areas of remaining impacted groundwater for each COC have been indicated on Figures 6 through 10. At this time, all COCs have been delineated in the groundwater.

5 GROUNDWATER ABATEMENT PLAN

5.1 GROUNDWATER ASSESSMENT CONCLUSIONS

Based on the original soil investigations conducted at the Site, releases associated with the GBR facility have been successfully delineated. Additionally, a majority of impacted soil related to the releases was removed during the initial remedial activities in the 1980s and 1990s. Furthermore, it is apparent that the groundwater remediation system has successfully remediated petroleum hydrocarbon impacts, as originally designed. Following the reduction in petroleum hydrocarbon concentrations, the remediation system's primary purpose was to provide hydraulic control and restrict migration of potential contaminants off Site. By shutting down the system to re-establish equilibrium conditions in 2015, Western demonstrated that the remediation system has no effect on existing petroleum hydrocarbon groundwater impacts or the migration of impacts to off-Site locations. Residual impacts at the Site consist of PSH accumulations. Based on measured thicknesses and locations consistent with original source areas, PSH is likely to be adsorbed by soil in the three original source areas. Based on historical data and with no active source, the residual petroleum contaminants have not and are not likely in the future to migrate off-Site.

Based on the above conclusions, the original system effectively remediated a majority of the impacted area of the Site. However, updated groundwater information collected at the Site indicates that there are limited areas of residual petroleum-hydrocarbon and inorganic impacts remaining as indicated in Section 4.2.

5.2 RECOMMENDATIONS

Based on the data presented in this document, WSP recommends the following actions to address residual impacts at the Site to be performed within 120 days of NMOCD approval of this *Stage 2 Abatement Plan*:

- **Plug and Abandon (P&A) Nested/Clustered/Dry/Damaged wells:**
 - P&A dry or damaged wells at the Site to include wells GBR-21S (dry), GBR-23 (dry), GBR-33 (dry or obstructed, historical results below NMWQCC standards), and GBR-40 (dry and historical results below NMWQCC standards)
 - P&A the following wells that are redundant and not necessary for future monitoring/sampling: GBR-9 (close proximity to GBR-8 and GBR-11), GBR-10 (close proximity to GBR-8 and GBR-11, also obstructed from sampling), GBR-15 (close proximity to GBR-39) GBR-24S (also obstructed during sampling), and GBR-26 (no recovery)
 - Replace well GBR-41 and P&A the existing well. GBR-41 has historically collected PSH. Currently, the well is constructed with 10 feet of screen mostly within the sand unit and 3 feet of PVC blank below the screen and within the sandstone unit. The new well should be installed with 15 feet of screen at least 10 feet into the sandstone unit with no PVC blank below the screen. This well will be used to assess current groundwater conditions at this location and capture PSH if still present in the area.
- **PSH Recovery:**
 - Removal of PSH will be conducted, but accumulation and recoverability of PSH in wells is poorly understood. Western will conduct a product baildown test on wells that currently contain PSH to assess potential remediation options for the residual PSH. Specifically, the baildown test will be used to calculate transmissivity values and recovery volume estimates for the PSH using the American Society for Testing and Materials (ASTM) E2856-13 *Standard Guide for Estimation of LNAPL Transmissivity* and American Petroleum Institute (API) *LNAPL Transmissivity Workbook Calculator*. The results of these tests will guide decisions on whether automated product recovery systems (i.e., solar sipper) would be viable at the Site.
 - Western will continue monthly manual recovery unless a more efficient system is deemed appropriate.

— **Continued Monitoring:**

- Based on the results of the April 2021 sampling event with the BLM (Section 3.1.4), WSP recommends that future groundwater samples be collected using low-flow purging and sampling methods to obtain higher quality samples with low turbidity.
- WSP recommends that quarterly samples be collected at all viable wells for Site COCs proposed in the preceding section: benzene, total naphthalenes, and dissolved concentrations of lead and manganese.
- Once Western has a year of quarterly data, the COCs will be evaluated to understand remaining source areas, ensure full lateral delineation, and consider additional remediation as appropriate.

— **Delineation of Residual Soil Impacts:**

- Due to the continued presence of PSH in several Site wells, WSP recommends that vadose-zone soil in the areas near GBR-7, GBR-22, and GBR-41 be assessed for residual concentrations of total petroleum hydrocarbons (TPH) that may be contributing to PSH in the associated wells. Based on the results, WSP will propose a remediation strategy to remove the residual TPH concentrations.

— **Reporting:**

- As outlined in Discharge Permit GW-40 issued on January 6, 2021, annual reports will be prepared and submitted to the NMOCD for review on or before June 15th of each year. Reports will include the information specified in Section 2.E. of Discharge Permit GW-40.

6 REFERENCES

BLM. (1992). *Remedial Investigation Report for the Lee Acres Landfill*. Albuquerque: US Bureau of Land Management.

EPA. (2002). *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers*. Washington, D.C.: United States Environmental Protection Agency.

EPA. (2004). *Record of Decision for the Lee Acres Landfill Superfund Site, Farmington, New Mexico*.

GCL. (1987). *Soil and Ground Water Investigations and Remedial Action Plan*. Albuquerque, New Mexico.

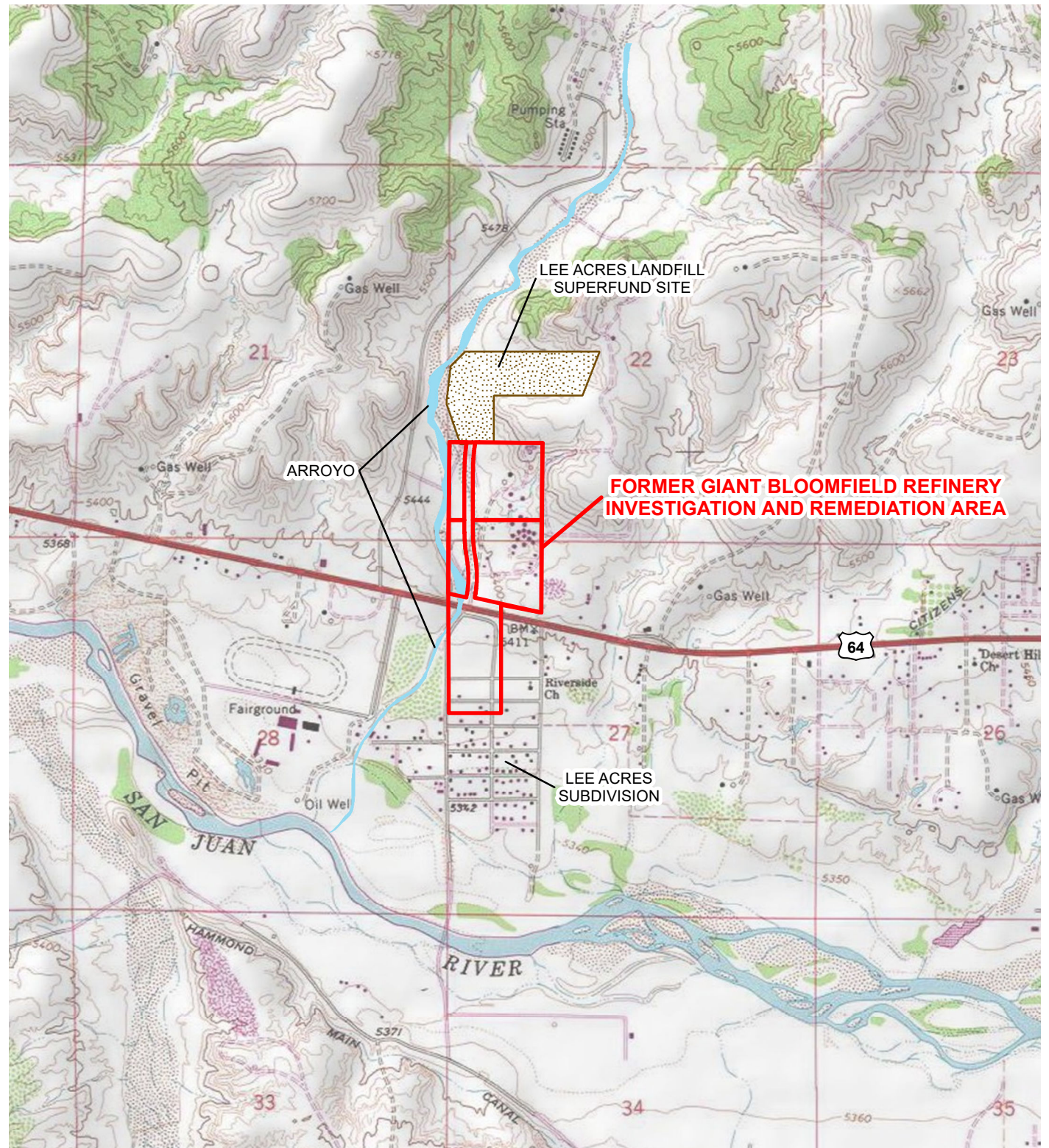
LTE. (2016). *2015 Annual Report*. Durango, Colorado.

LTE. (2017). *2016 Annual Report*. Durango, Colorado.

LTE. (2018a). *2017 Annual Report*. Durango, Colorado.

LTE. (2018b). *2018 Annual Report*. Durango, Colorado.

FIGURES

**LEGEND**

- FORMER GIANT BLOOMFIELD REFINERY PROPERTY BOUNDARY
- ARROYO
- FORMER LEE ACRES LANDFILL

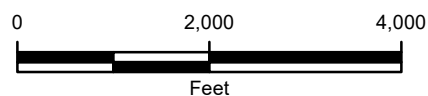
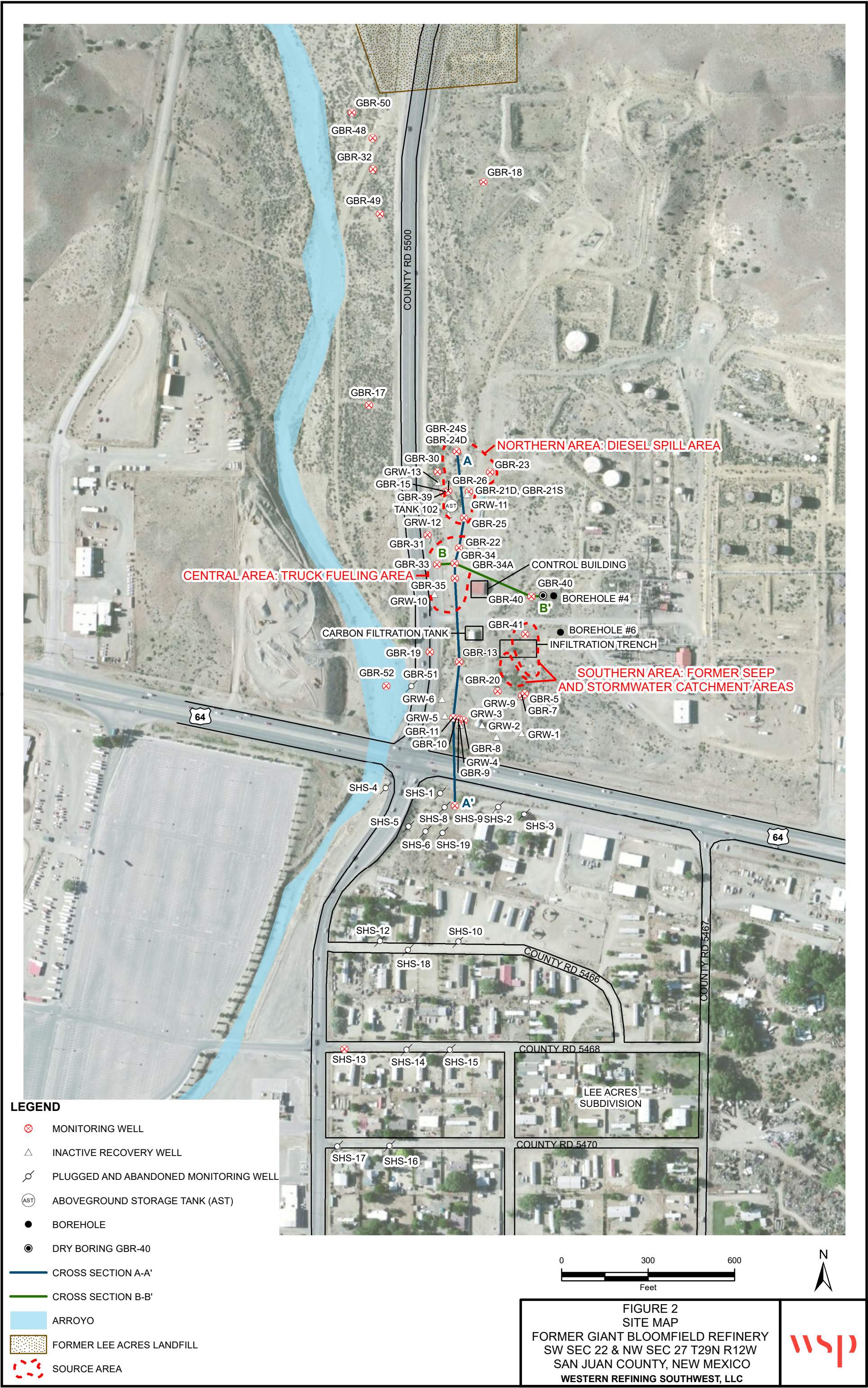
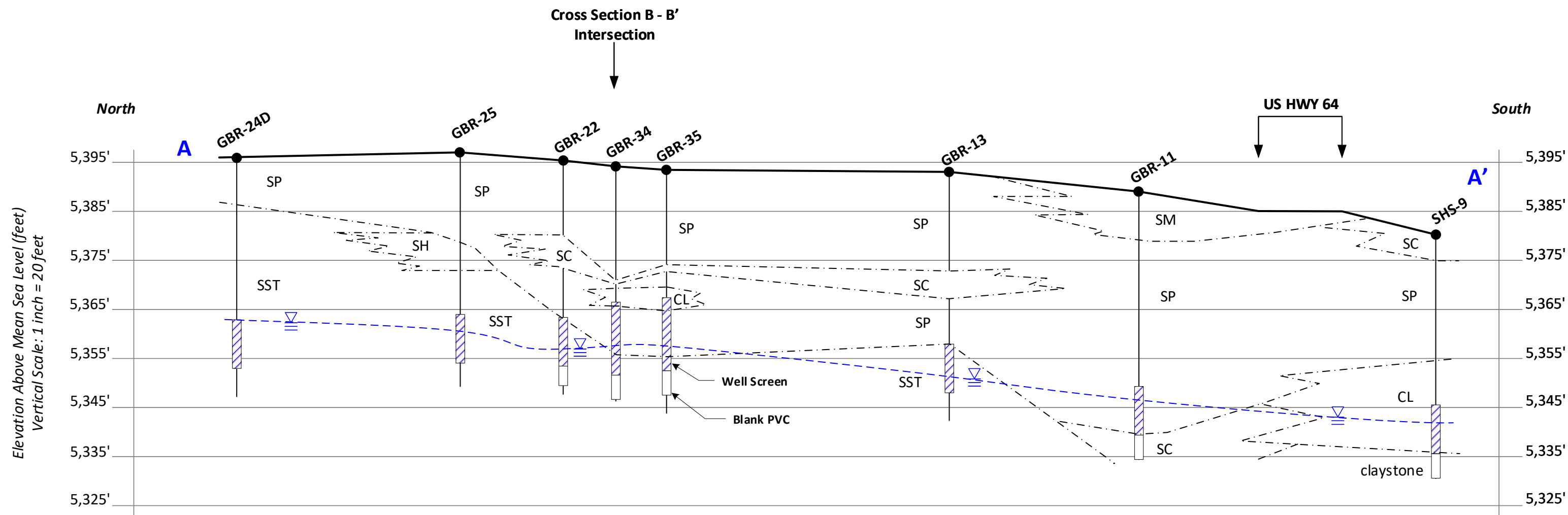


IMAGE COURTESY OF ESRI/USGS

FIGURE 1
SITE LOCATION MAP
 FORMER GIANT BLOOMFIELD REFINERY
 SW SEC 22 & NW SEC 27 T29N R12W
 SAN JUAN COUNTY, NEW MEXICO
 WESTERN REFINING SOUTHWEST, LLC







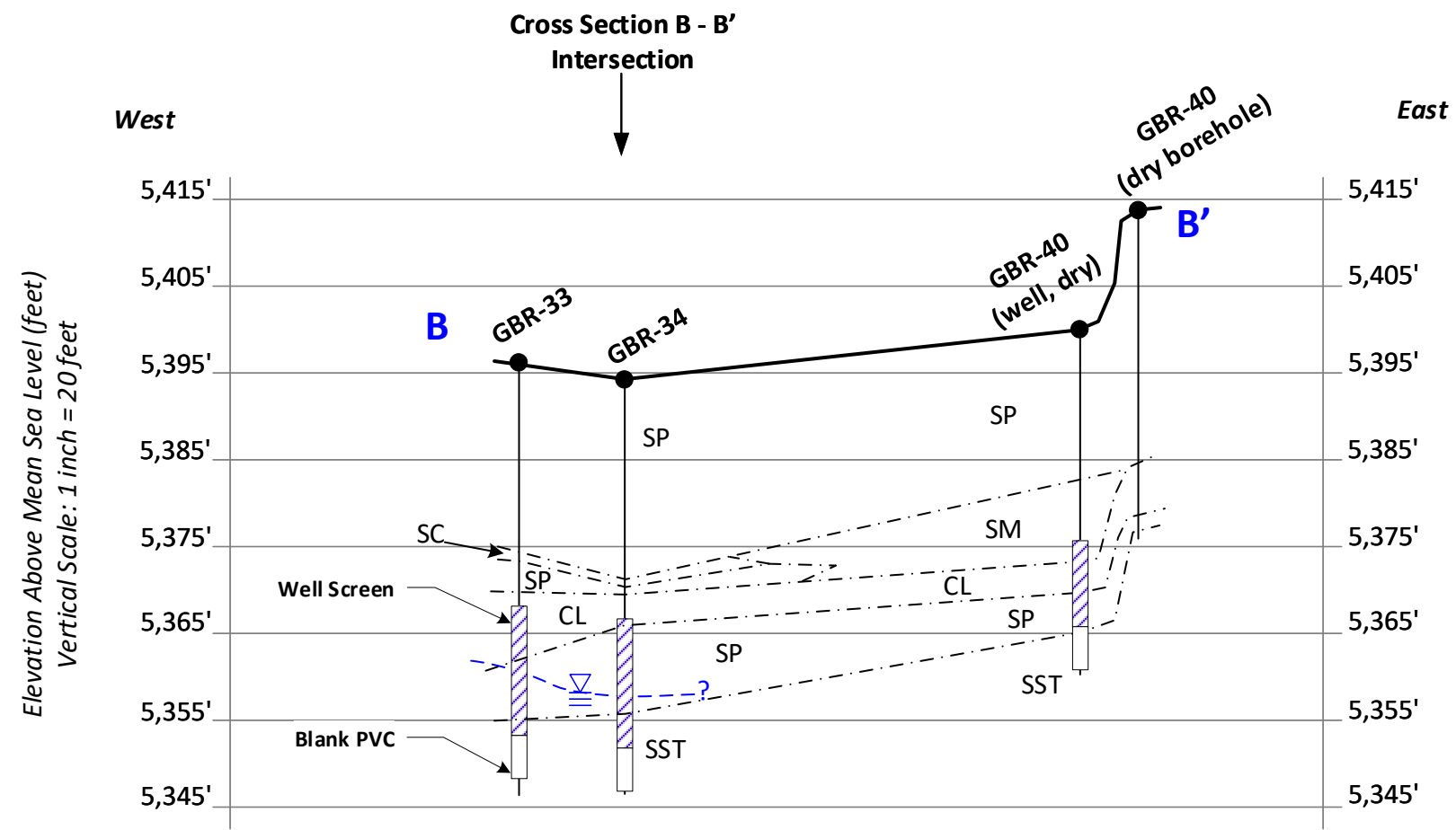
LEGEND

-  GROUNDWATER ELEVATION (BASED ON JANUARY 2021 MEASUREMENTS)
- CL LEAN CLAY
- SC CLAYEY SAND
- SH SHALE
- SM SILTY SAND
- SP SAND, WELL SORTED
- SST SANDSTONE



FIGURE 3
CROSS SECTION A TO A'
FORMER GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO
WESTERN REFINING SOUTHWEST, LLC



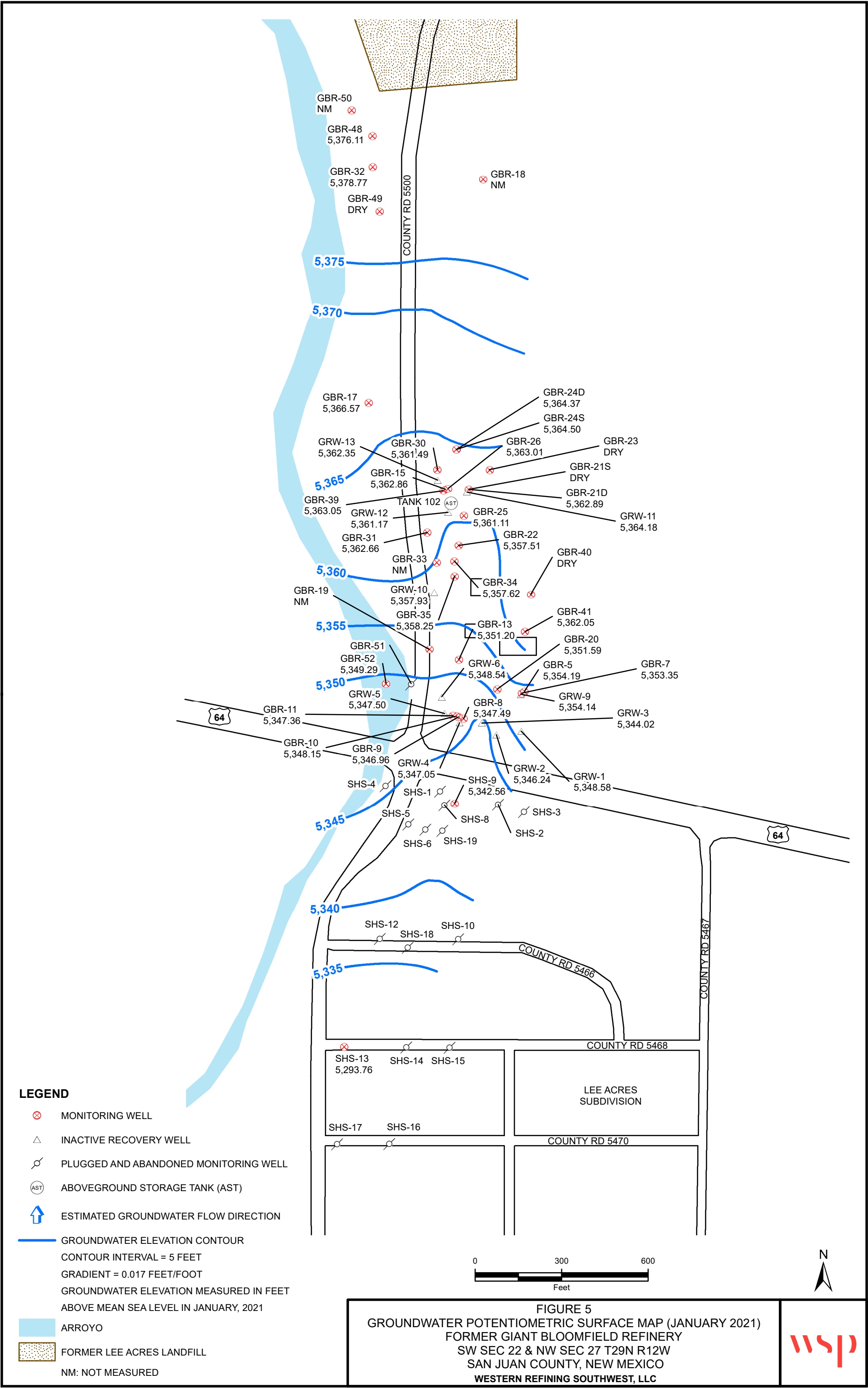


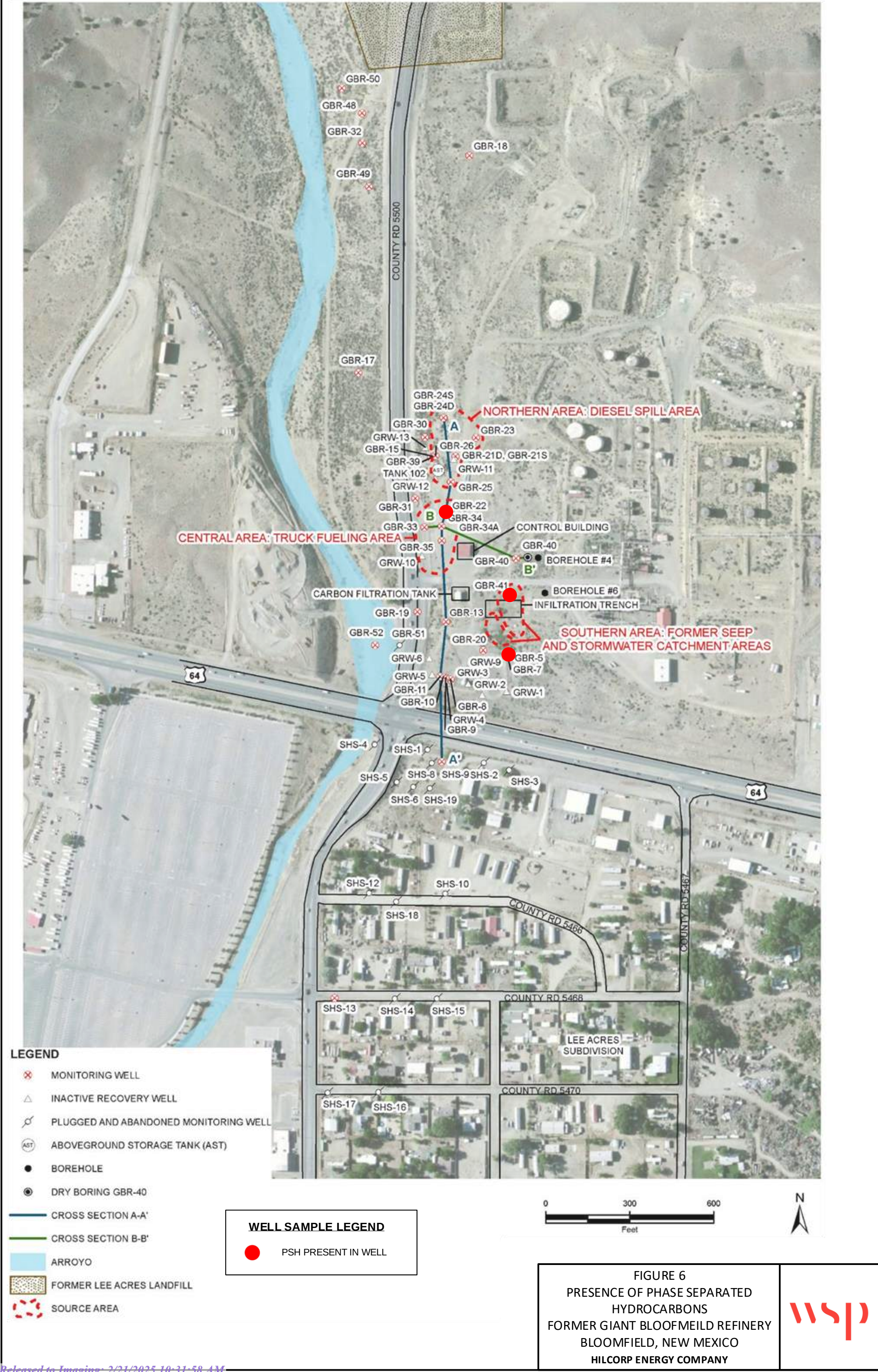
LEGEND

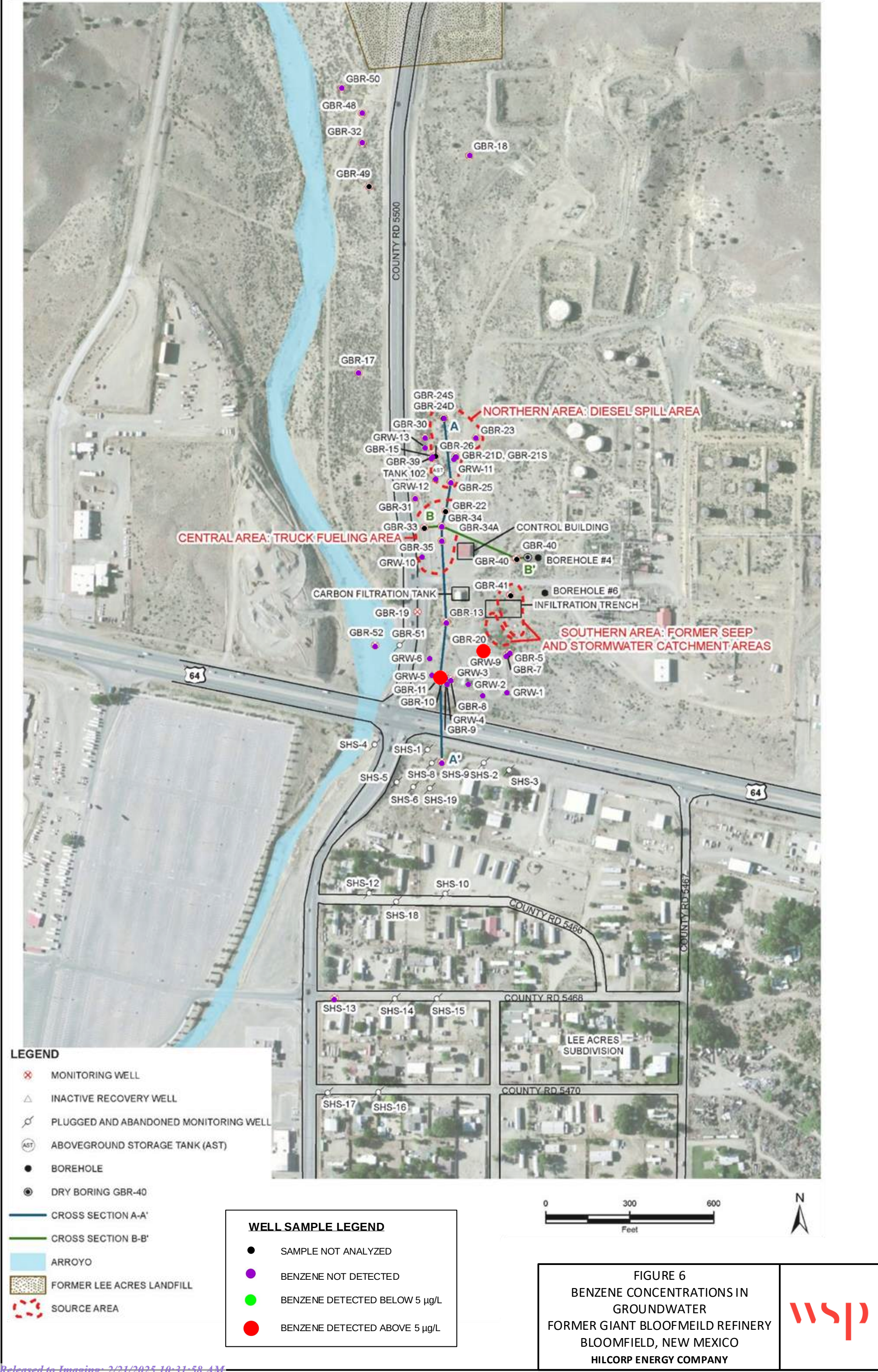
-  GROUNDWATER ELEVATION (BASED ON JANUARY 2021 MEASUREMENTS)
- CL LEAN CLAY
- SC CLAYEY SAND
- SM SILTY SAND
- SP SAND, WELL SORTED
- SST SANDSTONE

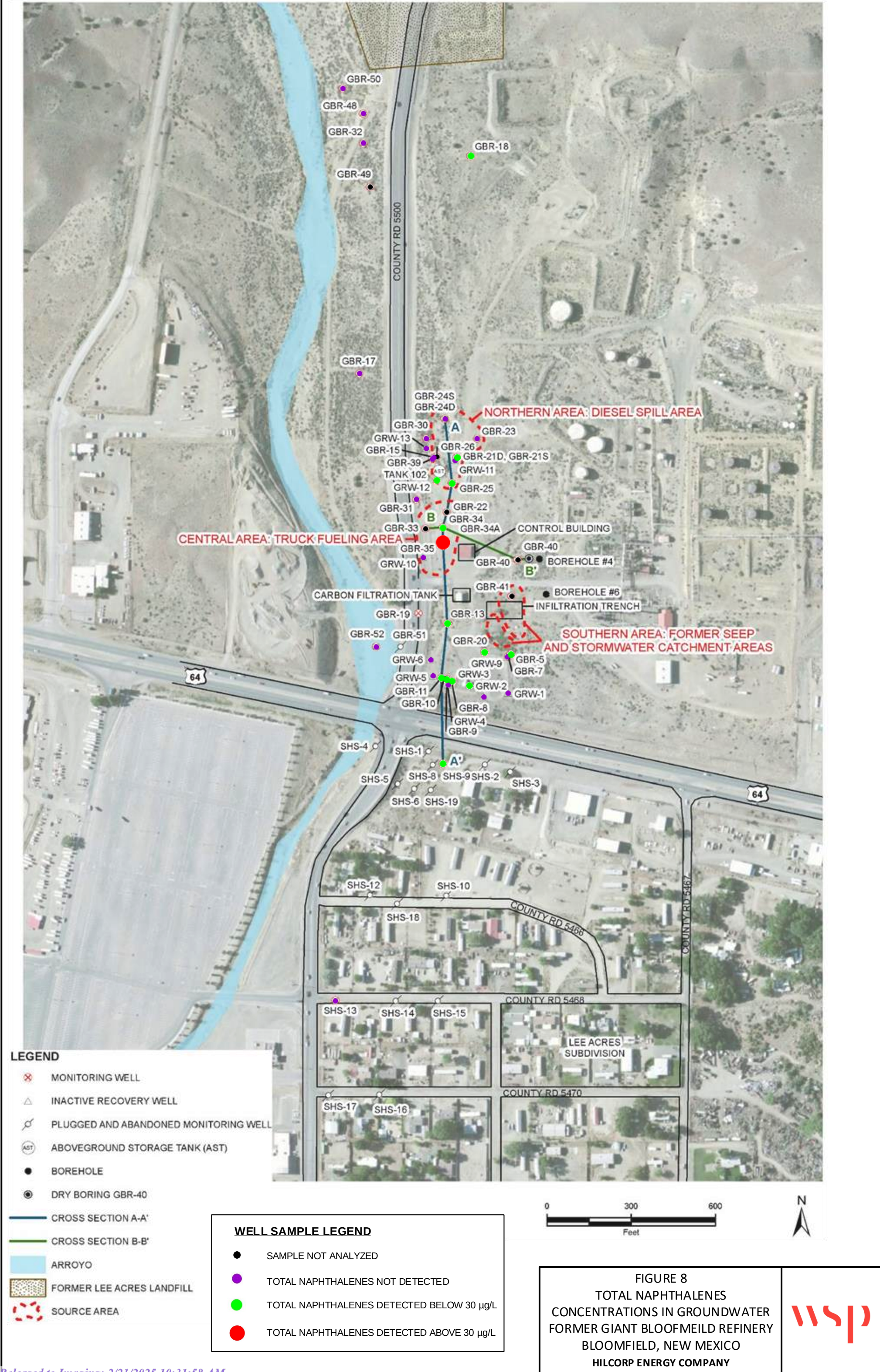
FIGURE 4
CROSS SECTION B TO B'
FORMER GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO
WESTERN REFINING SOUTHWEST, LLC

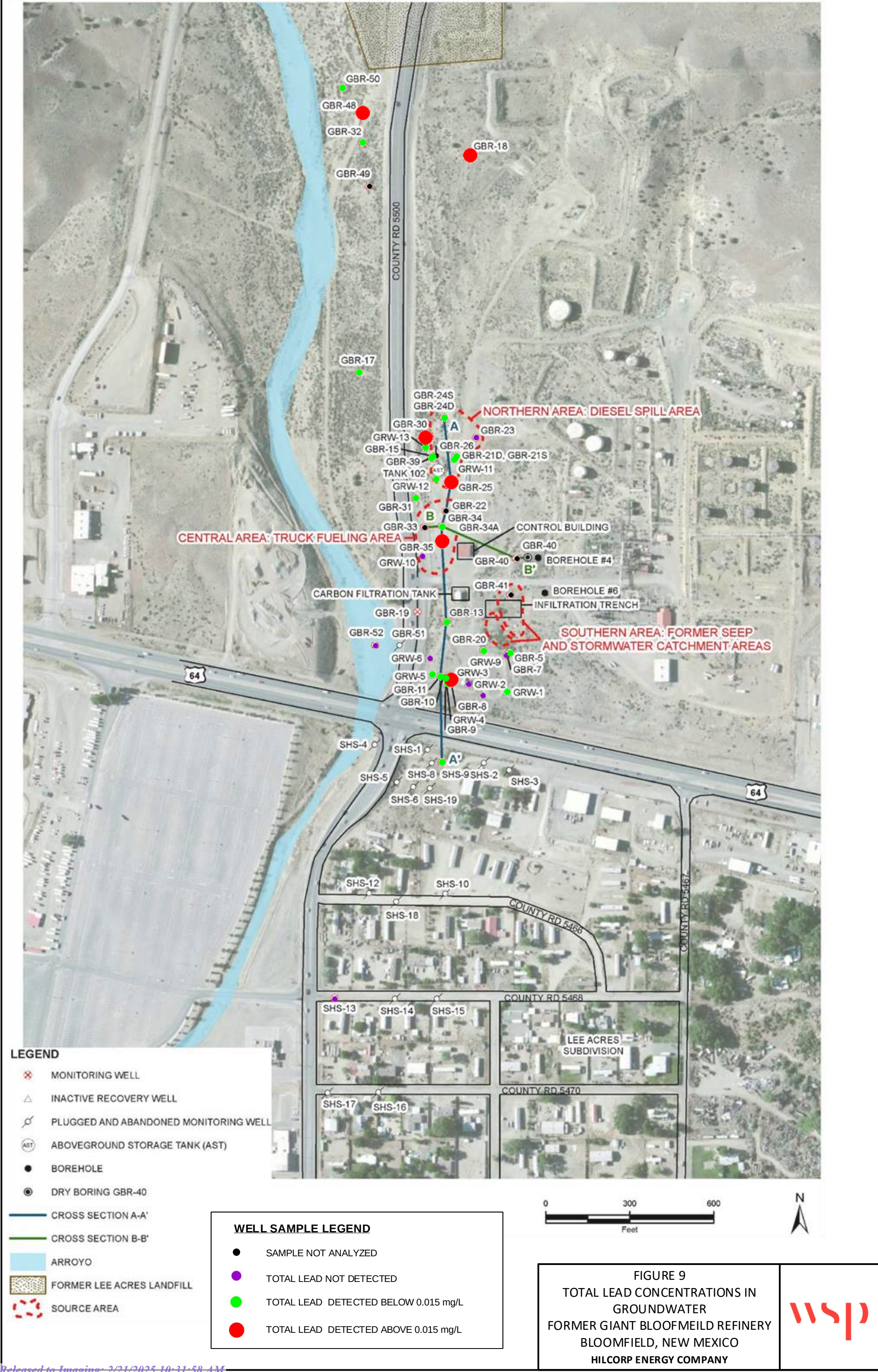


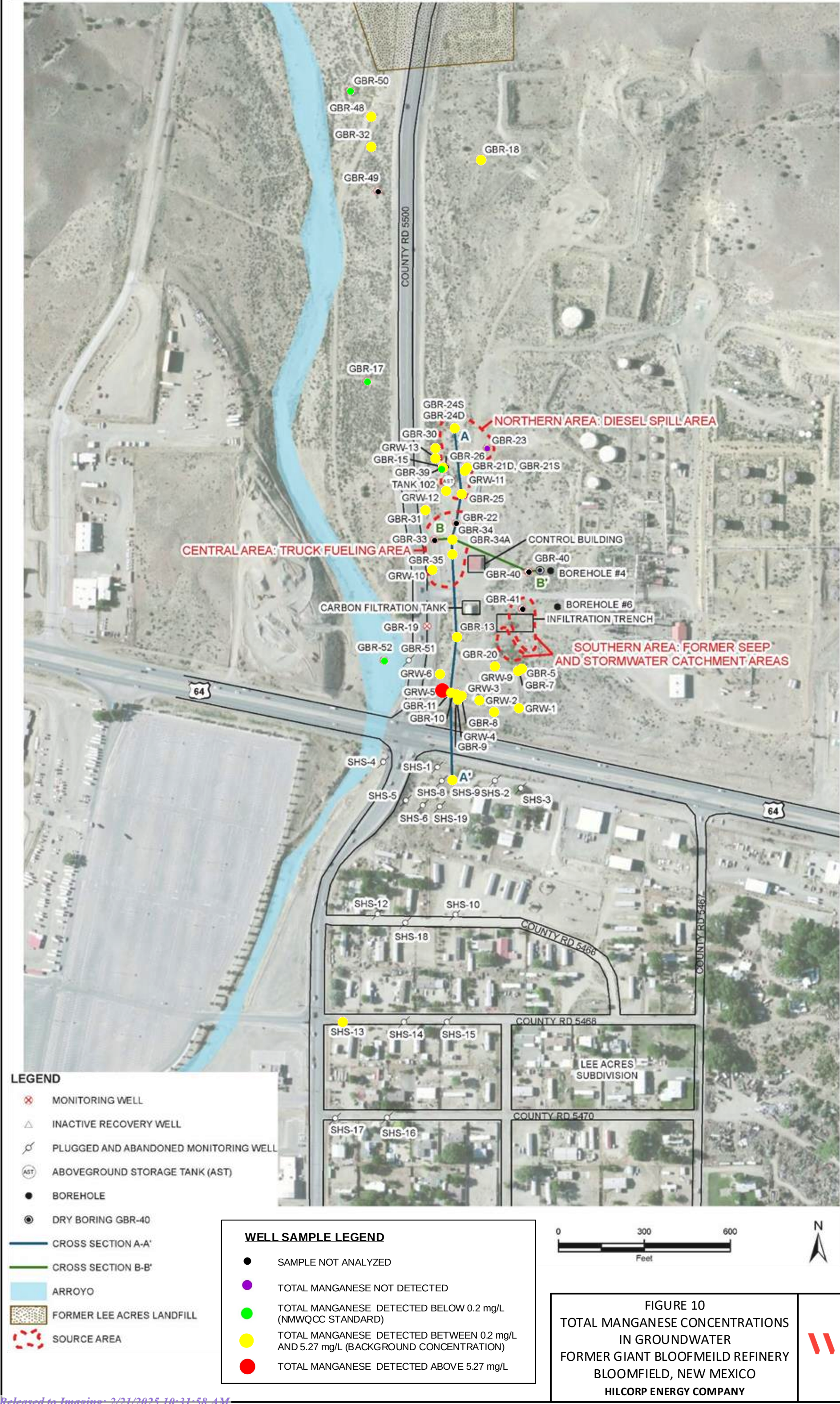












TABLES

TABLE 1
WELL CONSTRUCTION INFORMATION

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well Number	Wellhead Elevation (feet)	Total Depth (feet)	Screened Interval (feet BTOC)	Screen Placement (lithology)	Well Diameter (inches)
GRW-1 / GBR-38	5,394.30	72.59	27 - 67	sand/sandstone	6
GRW-2 / GBR-42	5,391.28	66.11	37 - 52	sand	6
GRW-3 / GBR-29	5,388.77	60.90	25 - 65	sand/sandstone	6
GRW-4 / GBR-43	5,390.02	66.30	35 - 50	sand	6
GRW-5 / GBR-37	5,390.56	75.44	26 - 66	sand/sandstone	6
GRW-6 / GBR-44	5,390.81	63.11	33 - 48	sand	6
GRW-9 / GBR-6	5,395.70	54.90	20 - 60	sand/sandstone	6
GRW-10 / GBR-36	5,395.02	66.02	25 - 65	sand/clay/gravel	6
GRW-11 / GBR-27	5,397.85	55.60	22 - 62	sand/shale/sandstone	5
GRW-12 / GBR-28	5,397.24	51.76	24 - 64	sand/clay/sandstone	6
GRW-13 / GBR-14	5,396.90	70.86	20 - 60	sand/gravel	6
GBR-5*	5,395.07	46.88	32 - 52	sandstone	2
GBR-7	5,395.85	50.56	32 - 42	sand	2
GBR-8	5,390.50	49.26	38 - 53	sand	2
GBR-9	5,389.92	67.28	50 - 60	silt/shale	2
GBR-10	5,390.57	47.50	29 - 39	sand	2
GBR-11	5,389.43	51.20	40 - 50	sand	2
GBR-13*	5,393.04	45.40	32 - 42	sandstone	2
GBR-15	5,397.99	58.33	45 - 55	clay	2
GBR-17	5,402.69	50.25	31 - 51	sand	2
GBR-18*	5,421.68	47.87	35 - 45	siltstone/sandstone	2
GBR-20*	5,393.47	44.60	27 - 37	sandstone	2
GBR-21D*	5,400.19	48.64	33 - 38	shale	2
GBR-21S*	5,400.65	34.85	17 - 32	shale	2
GBR-22*	5,395.91	45.85	32 - 42	sandstone	2
GBR-23 (1)*	5,403.72	41.75	24 - 34	sandstone	2
GBR-24D*	5,396.77	51.44	33 - 43	sandstone	2
GBR-24S*	5,396.08	33.50	23 - 33	sandstone	2
GBR-25*	5,397.03	50.27	33 - 43	sandstone	2
GBR-26	5,396.72	42.54	25 - 35	sand	2
GBR-30	5,395.59	41.44	25 - 40	sand/clay	2
GBR-31	5,396.58	43.50	25 - 40	clay/gravel	2
GBR-32*	5,414.86	47.90	25 - 40	sandstone	2
GBR-33	5,396.28	45.77	27 - 43	clay/sand	2
GBR-34	5,394.00	46.70	27 - 43	sand/sandstone	2
GBR-35	5,393.66	41.62	25 - 41	sand/sandstone	2
GBR-39	5,397.55	41.39	25 - 35	sand	2
GBR-40	5,400.76	39.40	26 - 36	sand	2
GBR-41	5,396.35	34.34	22 - 32	sand	2
GBR-48	5,413.90	43.76	28 - 38	sand/gravel	2
GBR-49	(2)	40.26	26 - 36	sand	2
GBR-50	(2)	40.63	27 - 37	sand	2
GBR-52 / GRW-8	5,387.74	54.59	30 - 45	sand	6
SHS-9	5,380.79	46.27	35 - 45	clay	4
SHS-13	5,367.81	47.51	27 - 42	sand	4
Wells Plugged and Abandoned or Damaged					
GBR-19 (3)	5,393.83	46.23	-	-	-
GBR-51 / GRW -7	5,389.68	57.07	-	-	-
SHS-1	5,383.54	50.40	-	-	-
SHS-2	5,381.66	44.56	-	-	-
SHS-3	5,383.33	-	-	-	-
SHS-4	5,383.62	52.16	-	-	-
SHS-5	5,378.36	47.85	-	-	-
SHS-6	5,378.17	52.78	-	-	-
SHS-8	5,380.25	50.92	-	-	-
SHS-10	5,373.80	45.80	-	-	-
SHS-12	5,373.94	52.41	-	-	-
SHS-14	5,367.07	52.71	-	-	-
SHS-15	5,366.21	47.78	-	-	-
SHS-16	5,362.58	42.20	-	-	-
SHS-17	5,364.35	46.21	-	-	-
SHS-18	5,373.64	47.36	-	-	-
SHS-19	5,378.89	52.40	-	-	-

Notes:

(1) Well hit by a vehicle May 2014

(2) Top-of-casing elevation is unknown

(3) Well was paved over in June 2010

* - asterisk indicates that the well is screened withing the bedrock aquifer, no asterisk indicates that a well is screened in the alluvial aquifer
BTOC - below top of casing

D - designates that the well screen is deep

P&A - plugged and abandoned

S - designates that the well screen is shallow

GBR-1, GBR-2, GBR-3, GBR-4, GBR-12, GBR-16, GBR-45, GBR-46, and GBR-47 not completed as wells

TABLE 2
GROUNDWATER ELEVATIONS AND THICKNESS OF PHASE-SEPARATED HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well Number	Wellhead Elevation (feet)	Total Depth (feet)	February 2020				April 2020				July 2020				December 2020				January 2021			
			Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet amsl)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet amsl)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet amsl)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet amsl)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet amsl)
GRW-1 / GBR-38	5,394.30	72.59	44.28	-	-	5,350.02	43.71	-	-	5,350.59	44.62	-	-	5,349.68	45.72	-	-	5,348.58	45.43	-	-	5,348.87
GRW-2 / GBR-42	5,391.28	66.11	44.32	-	-	5,346.96	44.27	-	-	5,347.01	44.38	-	-	5,346.90	45.09	-	-	5,346.19	45.04	-	-	5,346.24
GRW-3 / GBR-29	5,388.77	60.90	44.14	-	-	5,344.63	43.96	-	-	5,344.81	44.30	-	-	5,344.47	45.01	-	-	5,343.76	44.75	-	-	5,344.02
GRW-4 / GBR-43	5,390.02	66.30	42.40	-	-	5,347.62	42.37	-	-	5,347.65	42.54	-	-	5,347.48	43.01	-	-	5,347.01	42.97	-	-	5,347.05
GRW-5 / GBR-37	5,390.56	75.44	42.52	-	-	5,348.04	42.51	-	-	5,348.05	42.69	-	-	5,347.87	43.13	-	-	5,347.43	43.06	-	-	5,347.50
GRW-6 / GBR-44	5,390.81	63.11	41.67	-	-	5,349.14	41.68	-	-	5,349.13	41.85	-	-	5,348.96	42.30	-	-	5,348.51	42.27	-	-	5,348.54
GRW-9 / GBR-6	5,395.70	54.90	41.65	-	-	5,354.05	41.35	-	-	5,354.35	41.44	-	-	5,354.26	41.38	-	-	5,354.32	41.56	-	-	5,354.14
GRW-10 / GBR-36	5,395.02	66.02	36.62	-	-	5,358.40	36.60			5,358.42	36.59	-	-	5,358.43	NM	-	-	-	37.09	-	-	5,357.93
GRW-11 / GBR-27	5,397.85	55.60	34.13	-	-	5,363.72	33.40	-	-	5,364.45	NM	-	-	-	33.95	-	-	5,363.90	33.67	-	-	5,364.18
GRW-12 / GBR-28	5,397.24	51.76	34.98	-	-	5,362.26	35.53	-	-	5,361.71	36.10	-	-	5,361.14	36.19	-	-	5,361.05	36.07	-	-	5,361.17
GRW-13 / GBR-14	5,396.90	70.86	33.94	-	-	5,362.96	33.95	-	-	5,362.95	34.18	-	-	5,362.72	34.55	-	-	5,362.35	34.55	-	-	5,362.35
GBR-5	5,395.07	46.88	41.65	-	-	5,353.42	40.63	-	-	5,354.44	40.75	-	-	5,354.32	41.18	-	-	5,353.89	40.88	-	-	5,354.19
GBR-7	5,395.85	50.56	42.29	42.12	0.17	5,353.70	42.24	42.06	0.18	5,353.75	42.35	42.29	0.06	5,353.55	42.87	42.75	0.12	5,352.98	42.59	42.48	0.11	5,353.26
GBR-8	5,390.50	49.26	42.45			5,348.05	42.41			5,348.09	42.55	-	-	5,347.95	43.00	-	-	5,347.50	43.01			5,347.49
GBR-9	5,389.92	67.28	42.38	-	-	5,347.54	42.37	-	-	5,347.55	42.52	-	-	5,347.40	42.98	-	-	5,346.94	42.96	-	-	5,346.96
GBR-10	5,390.57	47.50	42.38	-	-	5,348.19	42.40	-	-	5,348.17	42.38	-	-	5,348.19	42.41	-	-	5,348.16	42.42	-	-	5,348.15
GBR-11	5,389.43	51.20	41.49	-	-	5,347.94	41.47	-	-	5,347.96	41.64	-	-	5,347.79	42.05	-	-	5,347.38	42.07	-	-	5,347.36
GBR-13	5,393.04	45.40	41.24	-	-	5,351.80	41.21	-	-	5,351.83	41.40	-	-	5,351.64	41.85	-	-	5,351.19	41.84	-	-	5,351.20
GBR-15	5,397.99	58.33	34.63	-	-	5,363.36	34.56	-	-	5,363.43	34.72	-	-	5,363.27	35.13	-	-	5,362.86	34.86	-	-	5,363.13
GBR-17	5,402.69	50.25	35.38	-	-	5,367.31	35.38	-	-	5,367.31	35.69	-	-	5,367.00	36.11	-	-	5,366.58	36.12	-	-	5,366.57
GBR-18	5,421.68	47.87	NM	-	-	-	37.26	-	-	5,384.42	37.59	-	-	5,384.09	38.06	-	-	5,383.62	37.71	-	-	5,383.97
GBR-20	5,393.47	44.60	41.61	-	-	5,351.86	41.53	-	-	5,351.94	41.64	-	-	5,351.83	Dry				41.88	-	-	5,351.59
GBR-21D	5,400.19	48.64	36.66	-	-	5,363.53	36.73	-	-	5,363.46	36.88	-	-	5,363.31	37.08	-	-	5,363.11	37.30	-	-	5,362.89
GBR-21S	5,400.65	34.85	Dry				Dry				Dry				Dry				Dry			
GBR-22	5,395.91	45.85	38.08	-	-	5,357.83	36.69	36.45	0.24	5,359.41	38.40	38.11	7.74	5,363.70	37.23	37.04	0.19	5,358.68	38.40	38.30	0.10	5,357.51
GBR-23	5,403.72	41.75	38.92	-	-	5,364.80	36.02	-	-	5,367.70	39.40	-	-	5,364.32	Dry				Dry			
GBR-24D	5,396.77	51.44	31.99	-	-	5,364.78	31.85	-	-	5,364.92	32.02	-	-	5,364.75	32.39	-	-	5,364.38	32.40	-	-	5,364.37
GBR-24S	5,396.08	33.50	Dry				31.22				31.58	-	-	5,364.50	Dry				31.40	-	-	5,364.68
GBR-25	5,397.03	50.27	35.66	-	-	5,361.37	35.64	-	-	5,361.39	35.81	-	-	5,361.22	36.11	-	-	5,360.92	35.92	-	-	5,361.11
GBR-26	5,396.72	42.54	33.73	-	-	5,362.99	32.77	-	-	5,363.95	33.74	-	-	5,362.98	32.65	-	-	5,364.07	33.71	-	-	5,363.01
GBR-30	5,395.59	41.44	33.48	-	-	5,362.11	33.50	-	-	5,362.09	33.70	-	-	5,361.89	34.10	-	-	5,361.49	34.10	-	-	5,361.49
GBR-31	5,396.58	43.50	31.60			5,364.98	33.35	-	-	5,363.23	33.54	-	-	5,363.04	36.19	-	-	5,360.39	33.92			5,362.66
GBR-32	5,414.86	47.90	35.33	-	-	5,379.53	35.34	-	-	5,379.52	35.59	-	-	5,379.27	NM	-	-	-	36.09	-	-	5,378.77
GBR-33	5,396.28	45.77	34.88	-	-	5,361.40	NM	-	-	-	35.81	-	-	5,360.47	NM	-	-	-	Dry			
GBR-34	5,394.00	46.70	36.03	-	-	5,357.97	31.60	-	-	5,362.40	36.16	-	-	5,357.84	36.62	-	-	5,357.38	36.38	-	-	5,357.62
GBR-35	5,393.66	41.62	35.14	-	-	5,358.52	34.95	-	-	5,358.71	35.18	-	-	5,358.48	35.50	-	-	5,358.16	35.41	-	-	5,358.25
GBR-39	5,397.55	41.39	34.22	-	-	5,363.33	34.17	-	-	5,363.38	34.34	-	-	5,363.21	34.67	-	-	5,362.88	34.50	-	-	5,363.05
GBR-40	5,400.76	39.40	Dry				Dry				Dry				Dry				Dry			
GBR-41	5,396.35	34.34	34.27	-	-	5,362.08	Dry				34.27	-	-	5,362.08	34.27	-	-	5,362.08	Dry			
GBR-48	5,413.90	43.76	36.98	-	-	5,376.92	36.99	-	-	5,376.91	37.26	-	-	5,376.64	NM	-	-	-	37.79	-	-	5,376.11
GBR-49	(1)	40.26	33.41	-	-	-	33.47	-	-	-	33.71	-	-	-	Obstructed				Obstructed			
GBR-50	(1)	40.63	32.70	-	-	-	22.72	-	-	-	32.98	-	-	-	NM	-	-	-	33.50	-	-	-
GBR-52 / GRW-8	5,387.74	54.59	37.82	-	-	5,349.92	37.80	-	-	5,349.94	38.02	-	-	5,349.72	38.12	-	-	5,349.62	38.45	-	-	5,349.29
SHS-9	5,380.79	46.27	37.74			5,343.05	37.76	-	-	5,343.03	38.9	-	-	5,341.89	38.95	-	-	5,341.84	38.23			5,342.56
SHS-13	5,367.81	47.51	35.88	-	-	5,331.93	35.8	-	-	5,332.01	36.13	-	-	5,331.68	38.25	-	-	5,293.76	36.33	-	-	5,331.48

Notes:

amsl - above mean sea level

BTOC - below top of casing

D - designates that the well screen is deep

GWEL - groundwater elevation

PSH - phase-separated hydrocarbon

S - designates that the well screen is shallow

(1) Top-of-casing elevation is unknown

-: indicates no GWEL or PSH measured

When PSH is detected, the GWEL is corrected using an estimated density correction factor of 0.8

TABLE 3
GROUNDWATER QUALITY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well Number	April 2021				
	pH	Electrical Conductivity (mS/cm)	Temperature (°C)	Oxidation-Reduction Potential	Dissolved Oxygen (mg/L)
GRW-1 / GBR-38	8.10	4.704	17.20	-211.0	1.64
GRW-2 / GBR-42	7.74	5.003	17.23	-196.0	1.20
GRW-3 / GBR-29	7.18	3.136	17.45	-122.0	1.24
GRW-4 / GBR-43	7.32	4.166	17.21	-343.0	0.83
GRW-5 / GBR-37	7.47	4.090	16.98	-160.0	1.21
GRW-6 / GBR-44	7.25	4.194	16.96	-98.1	1.76
GRW-9 / GBR-6	8.05	4.494	17.81	-324.0	1.18
GRW-10 / GBR-36	-	-	-	-	-
GRW-11 / GBR-27	7.62	4.916	16.84	-222.4	1.38
GRW-12 / GBR-28	7.70	3.187	16.80	-189.4	1.60
GRW-13 / GBR-14	7.54	4.785	16.24	-121.0	1.43
GBR-5	7.89	3.926	18.11	-302.0	1.26
GBR-7	-	-	-	-	-
GBR-8	7.48	3.903	17.66	-226.0	1.64
GBR-9	7.40	3.826	17.30	-187.0	1.27
GBR-10	-	-	-	-	-
GBR-11	7.56	2.986	17.50	-225.0	1.17
GBR-13	7.17	3.711	17.62	-117.0	1.27
GBR-15	7.86	4.733	16.68	-147.8	2.04
GBR-17	8.07	3.115	15.77	100.3	2.08
GBR-18	7.14	3.004	16.33	84.2	1.98
GBR-20	8.20	3.106	18.54	-335.0	2.00
GBR-21D	7.63	3.948	17.01	-278.0	1.04
GBR-21S	-	-	-	-	-
GBR-22	7.48	4.487	17.73	-343.0	0.54
GBR-23	-	-	-	-	-
GBR-24D	7.67	4.718	15.85	-223.0	2.07
GBR-24S	-	-	-	-	-
GBR-25	7.12	4.895	17.34	-298.0	1.03
GBR-26	-	-	-	-	-
GBR-30	7.66	4.307	16.38	-64.7	1.48
GBR-31	4.47	3.897	16.73	-63.2	1.36
GBR-32	7.19	4.451	16.20	-66.2	1.66
GBR-33	-	-	-	-	-
GBR-34	7.36	2.908	17.47	-237.9	1.36
GBR-35	7.48	2.766	17.35	-245.0	1.37
GBR-39	7.64	3.777	16.74	-198.4	1.44
GBR-40	-	-	-	-	-
GBR-41	-	-	-	-	-
GBR-48	7.43	0.033	15.63	19.2	11.01
GBR-49	7.33	4.996	16.24	18.6	4.12
GBR-50	7.31	4.117	16.25	-72.3	1.91
GBR-52 / GRW-8	7.75	3.604	15.78	141.9	1.83
SHS-9	7.21	2.183	17.34	109.1	2.03
SHS-13	7.18	2.077	17.36	111.6	2.10

Notes:

BTOC - below top of casing

°C - degrees Celsius

D - designates that the well screen is deep

mg/L - milligrams per liter

mS/cm - millisiemens per centimeter

S - designates that the well screen is shallow

-: indicates no sample collected

TABLE 4
2021 ANALYZED CONSTITUENTS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

VOCs Method 8260B
benzene
toluene
ethylbenzene
xylene, total
methyl tert-butyl ether (MTBE)
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
1,2-dichloroethane (EDC)
1,2-dibromoethane (EDB)
naphthalene
1-methylnaphthalene
2-methylnaphthalene
acetone
bromobenzene
bromodichloromethane
bromoform
bromomethane
2-butanone
carbon disulfide
carbon tetrachloride
chlorobenzene
chloroethane
chloroform
chloromethane
2-chlorotoluene
4-chlorotoluene
cis-1,2-dichloroethene (cis-1,2-DCE)
cis-1,3-dichloropropene
1,2-dibromo-3-chloropropane
dibromochloromethane
dibromomethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
dichlorodifluoromethane
1,1-dichloroethane
1,1-dichloroethene (1,1-DCE)
1,2-dichloropropane

TABLE 4
2021 ANALYZED CONSTITUENTS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

1,3-dichloropropane
2,2-dichloropropane
1,1-dichloropropene
hexachlorobutadiene
2-hexanone
isopropylbenzene
4-isopropyltoluene
4-methyl-2-pentanone
methylene chloride
n-butylbenzene
n-propylbenzene
sec-butylbenzene
styrene
tert-butylbenzene
1,1,1,2-tetrachloroethane
1,1,2,2-tetrachloroethane
tetrachloroethene (PCE)
trans-1,2-dichloroethene (trans-1,2-DCE)
trans-1,3-dichloropropene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene (TCE)
trichlorofluoromethane
1,2,3-trichloropropane
vinyl chloride
PAHs Method 8270
naphthalene
1-methylnaphthalene
2-methylnaphthalene
acenaphthylene
acenaphthene
fluorene
phenanthrene
anthracene
fluoranthene
pyrene
benz(a)anthracene

TABLE 4
2021 ANALYZED CONSTITUENTS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

PAHs Method 8270 (continued)
chrysene
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(a)pyrene
dibenz(a,h)anthracene
benzo(g,h,i)perylene
indeno(1,2,3-cd)pyrene
Metals
arsenic*
barium*
beryllium
cadmium*
chromium*
iron
lead*
manganese
mercury*
nickel
selenium*
silver*
thallium
General Chemistry
chloride
fluoride
nitrate + nitrite as N
sulfate
total dissolved solids

Notes:

* - asterisks denotes RCRA 8 Metal

TABLE 5
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Valid Organic Carbon (VOCs)	benzene	toluene	ethylbenzene	stylenes, total	naphthalene	1-methyl-naphthalene	2-methyl-naphthalene	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1-methyl-naphthalene	2-methyl-naphthalene	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	1,2-d
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FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

TABLE 5
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Variable Organic Compound (VOCs)																															
Unit		benzene	toluene	ethylbenzene	styrenes, total	methyl tert-butyl ether (MTBE)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDDB)	naphthalene	1-methylpropylbenzene	2-methylpropylbenzene	acetone	hexanone	bromochlorobenzene	hexanone	2-butanone	carbon disulfide	carbon tetrachloride	chlorobenzene	chloroethane	chloroform	chloromethane	2-chlorobutane	4-chlorobutane	cis-1,2-dichloroethane (cis-1,2-DC2)	trans-1,2-dichloroethane (trans-1,2-DC2)	1,2-dibromo-3-chloropropane	1-bromochlorobenzene	1-bromomethane	1,2-dichloroethane	
NMWQCC Standard		5	1,000	700	620	100	NE	NE	5	0.05	combined 30			NE	NE	NE	NE	NE	NE	5	NE	NE	100	NE	NE	NE	70	NE	NE	NE	NE	600	
EPA Regional Screening Level (1)		4.55	1,100	15	193	143	55.7	60.3	1.71	0.0747	1.17	11.4	35.9	14,100	62.2	1.34	32.9	7.55	5,570	811	4.55	77.7	NE	2.21	188	237	250	36.1	4.71	0.00334	8.71	8.34	304
Lee Acres Alluvial Aquifer Background Concentration (2)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR-15	Oct-86	334	52	209	772	—	—	—	78	—	—	—	—	—	nd	nd	—	—	—	nd	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	—
	Dec-88	nd	nd	1.30	2.5	—	—	—	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	—	—	—	—	nd	—	nd	—	nd	
	Jan-95	nd	nd	nd	1.2	—	—	—	9.8	nd	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	0.70	
	Jan-00	nd	nd	0.70	nd	—	—	—	3.10	nd	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	1.0	
	Feb-21	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	
GBR-17	Jan-86	nd	nd	nd	nd	—	—	—	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	nd
	Dec-88	nd	nd	nd	nd	—	—	—	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	
	Jan-95	nd	nd	nd	nd	—	—	—	nd	nd	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	
	Dec-00	nd	nd	nd	nd	nd	—	—	nd	nd	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	
	Dec-05	nd	nd	nd	nd	nd	—	—	nd	nd	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	
	Jan-10	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	—	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
	Aug-15	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
	Nov-19	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
	Jan-21	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
GBR-18*	Jan-86	50	11	nd	nd	—	—	—	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	nd	
	Jul-94	<0.5	<0.5	<0.5	<0.5	<2.5	—	—	<0.5	<0.2	—	—	—	—	<0.2	<0.5	<1.0	—	—	<0.2	<0.5	<0.5	<1.0	—	—	<0.2	—	—	—	—	<0.5		
	Mar-21	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
GBR-20*	Jan-86	4.0	nd	nd	nd	—	—	—	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	—	—	—	nd	nd	—	nd	—	nd	
	Aug-15	<2.0	<2.0	<2.0	<3.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Feb-21	14	<5.0	120	<7.5	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<20	<20	<50	<5.0	<5.0	<5.0	<15	<50	<50	<5.0	<5.0	<10	<5.0	<15	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0
GBR-21S*	Jan-21 (Dry)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
GBR-21D*	May-88	nd	22	2.0	234	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Aug-15	<2.0	<2.0	<2.0	<3.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Feb-21	<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	
GBR-22*	May-86	nd	nd	nd	nd	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Aug-15	1.7	<2.0	16	6.3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Jan-21 (Not Sampled, PSH)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GBR-23*	Jan-21 (Dry or Obstructed)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GBR-24S*	Nov-86	580	200	300	495	—	—	—	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nd
	Jan-21 (Obstructed)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
GBR-24D*	Nov-86	230	5.0	180	nd	—	—	—	69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	nd
	Jan-88	63	11	73	40	—																											

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID		Sample Date	Volatile Organic Compounds (VOC's)																																	
			1,2-dichlorobenzene	1,4-dichlorobenzene	dibromodichloromethane	1,1-dichloroethane	1,1,2-trichloroethene (L,L,DCE)	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	1,1-chloropropene	bis(2-chlorophenyl) ether	2-methyl-2-butanol	propylphenyl ether	4-propynolone	4-methyl-2-pentanone	methylene chloride	n-hexahydrobenzene	p-propyl benzene	iso-octylbenzene	cymene	nonyl benzenes	1,1,2,4-tetrahydronaphthalene	1,1,2,4-tetrahydronaphthalene	naphthalene	trans-1,2-dichlorobenzene (P,C/D)	trans-1,2-dichlorobenzene (trans+L,D/C,D)	1,2,3-trichlorobenzene	1,2,4-trichlorobenzene	1,1,1-trichlorobenzene	1,1,2-trichlorobenzene	trichlorobenzene (TCE)	tetrachloroethane	1,2-dichloropropane	vinyl chloride	
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			NE	75	NE	25	7	5	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	NE	NE	100	NE	NE	10	5	100	NE	NE	NE	70	200	5	5	NE	NE	2
EPA Regional Screening Level (1)			NE	482	197	27.5	285	8.25	369	NE	NE	1.39	38.0	451	NE	6,260	107	1,000	656	2,010	1,210	691	5.74	0.757	40.6	67.8	369	7.04	3.99	8,010	0.415	2.83	5,160	0.00749	0.188	
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR-15	Oct-86		--	--	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Dec-88		nd	nd	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-95		nd	nd	--	nd	--	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-00		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-17	Jan-86		nd	nd	nd	20	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	1.0	nd	nd	--	--	14	nd	1.0	nd	--	--	nd
	Dec-88		nd	nd	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	3.1	nd	nd	nd	--	--	nd
	Jan-95		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Dec-00		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Dec-05		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Aug-15		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Nov-19		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Jan-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-18*	Jan-86		nd	nd	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jul-94		<0.5	<0.5	--	<0.2	<0.2	--	--	--	--	--	--	--	--	--	<2.0	--	--	--	--	--	--	--	--	--	--	--	--	<1.0	<0.2	<0.2	<0.2	--	--	<0.5
	Mar-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-20*	Jan-86		nd	nd	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Aug-15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Feb-21		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<50	24	<5.0	<50	<15	<15	19	6.4	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0
GBR-215*	Jan-21 (Dry)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
GBR-21D*	May-88		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Aug-15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<3.0	<3.0	<1.0	1.6	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-22*	May-88		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Aug-15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Jan-21 (Not Sampled, PSH)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
GBR-23*	Jan-21 (Dry or Obstructed)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
GBR-245*	Nov-86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--
	Jan-21 (Obstructed)		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
GBR-24D*	Nov-86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	--	--	--	--	--
	Jan-88		1.3	nd	nd	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	0.69	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-95		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-00		nd	nd	--	nd	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-05		nd	nd	--	0.50	nd	nd	--	--	--	--	--	--	--	nd	--	--	--	--	--	--	--	nd	nd	nd	nd	--	--	nd	nd	nd	nd	--	--	nd
	Jan-10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	
	Aug-15		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Nov-19		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-25*	May-86		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Aug-15		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Feb-21		<5.0	<5.0	<5.0	<5.0	<5.0	<5																												

TABLE 5
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Valid Organic Carbon (VOCs)	benzene	toluene	ethylbenzene	stylenes, total	methyl tert-butyl ether (MTBE)	1,2,4-trimethylbenzene	1,3,5-trimethylbenzene	1,2-dichlorobenzene (EDC)	1,2-dibromobenzene (EDB)	naphthalene	1-methylcyclohexane	2-methylcyclohexane	acetone	hexanone	hexanediolmonobenzene	hexanedioldibromobenzene	hexanediolform	hexanediolone	2-butanone	carbon disulfide	carbon tetrachloride	chlorobenzene	chloroethane	chloroform	chlorobenzene	2-chlorobenzene	4-chlorobenzene	hex-1,2-dichlorobenzene (cis-1,2-DCE)	hex-1,3-dichlorobenzene	1,2-dibromo-3-chlorobenzene	1-bromobenzene	1,2-dibromobenzene		
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
NMWQCC Standard			5	1,000	700	620	100	NE	NE	5	0.05	combined 30	NE	NE	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	100	NE	NE	NE	NE	70	NE	NE	NE	NE	600	
EPA Regional Screening Level (1)			4.55	1,100	15	193	143	55.7	60.3	1.71	0.0747	1.17	11.4	35.9	14,100	62.2	1.34	32.9	7.55	5,570	811	4.55	77.7	NE	2.21	188	237	250	36.1	4.71	0.00334	8.71	8.34	304		
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
GBR-32*	Aug-88		nd	nd	nd	nd	—	—	—	nd	—	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	3.9	nd	—	—	97	nd	—	nd	—	nd	nd	
	Jan-95		0.80	nd	nd	nd	—	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	1.4	nd	—	—	120	nd	—	nd	—	nd	nd	
	Dec-00		nd	nd	nd	nd	nd	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	1.6	nd	—	—	10	0.30	—	nd	—	nd	nd	
	Dec-05		nd	nd	nd	nd	—	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	—	nd	—	nd	nd	nd	
	Jan-10		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	—	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
	Aug-15		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
	Nov-19		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
	Jan-21		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
GBR-33	Sep-89		nd	nd	7.9	17	—	—	—	0.97	—	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	nd	
	Jan-21 (Dry or Obstructed)		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
GBR-34	Aug-15		5.2	<5.0	51	49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	Feb-21		<1.0	<1.0	1.7	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	27	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
GBR-35	Feb-21		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<10	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
GBR-39	Feb-21		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	1.2	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
GBR-40	Jan-88		nd	nd	1.8	nd	—	—	—	nd	—	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	nd	nd	—	nd	—	nd	nd	
	Jan-21 (Dry)		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
GBR-41	Jan-88		25	16	474	224	—	—	—	nd	—	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	nd	nd	—	nd	—	nd	nd	
	Jan-21 (Dry)		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
GBR-48	Nov-88		nd	nd	nd	nd	—	—	—	nd	—	—	—	—	—	—	nd	nd	nd	—	—	nd	180	nd	nd	nd	nd	—	—	nd	nd	—	nd	—	nd	nd
	Jan-95		nd	nd	nd	nd	—	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	1.4	nd	—	—	54	nd	—	nd	—	nd	nd	
	Dec-00		nd	nd	nd	nd	nd	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	3.2	nd	—	—	15	nd	—	nd	—	nd	nd	
	Dec-05		nd	nd	nd	nd	nd	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	nd	nd	—	—	—	nd	—	nd	—	nd	nd	
	Jan-10		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	—	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
	Aug-15		<2.0	<2.0	<2.0	<3.0	<2.0	<2.0	<2.0	<2.0	<4.0	<8.0	<8.0	<20	<2.0	<2.0	<6.0	<20	<20	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<6.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0		
	Nov-19		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
	Jan-21		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0		
GBR-49	Nov-88		nd	nd	nd	nd	—	—	—	nd	—	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	6.9	nd	—	—	nd	nd	—	nd	—	nd	—	nd
	Jan-95		nd	nd	nd	nd	—	—	—	nd	nd	—	—	—	—	—	nd	nd	nd	—	—	nd	nd	nd	1.2	nd	—	—	79	nd	—	nd	—	nd	—	nd
	Dec-00		nd	nd	nd	nd	nd	—	—																											

TABLE 5
GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Volatiles Organic Compounds (VOCs)	1,2-dichlorobenzene	1,4-dichlorobenzene	chlorobenzene	1,1-dichloroethane	1,1-dichloroethene (1,1-DCE)	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	1,1-dichloropropene	hexachlorocyclopentadiene	2-butanone	propyl acetate	isopropyl acetate	4-methyl-2-pentanone	nitrobenzene	phenyl acetate	styrene	nonyl acetate	1,1,1,2-tetrahalobenzene	1,1,2,2-tetrahalobenzene	trans-1,2-dichloroethene (PCE)	trans-1,2-dichloroethene (trans-1,2-DCE)	1,2-dichloroethane	1,2,4-trichlorobenzene	1,1,1-trichloroethane	1,1,2-trichloroethane	trichloroethene (TCE)	trichlorofluoromethane	1,2-dichloropropane	vinyl chloride		
Unit		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
NMWQCC Standard		NE	75	NE	25	7	5	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	NE	100	NE	NE	10	5	100	NE	NE	70	200	5	5	NE	NE	2	
EPA Regional Screening Level (1)		NE	4.82	197	27.5	285	8.25	369	NE	NE	1.39	38.0	451	NE	6,260	107	1,000	656	2,010	1,210	691	5.74	0.757	40.6	67.8	369	7.04	3.99	8,010	0.415	2.83	5,160	0.00749	0.188
Lee Acres Alluvial Aquifer Background Concentration (2)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Lee Acres Regional Background Concentration (3)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Lee Acres RI/ROD Remedial Goals (4)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
GBR Background Concentrations (5)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
GBR-32*	Aug-88	nd	nd	nd	3.6	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	24	nd	nd	---	---	4.5	nd	16	0.80	---	nd	
	Jan-95	nd	nd	---	1.8	nd	---	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	11	nd	nd	---	---	nd	nd	6.4	nd	---	nd	
	Dec-00	nd	nd	---	1.1	nd	---	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	2.9	nd	nd	---	---	nd	nd	2.1	nd	---	nd	
	Dec-05	nd	nd	---	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	nd	---	---	nd	nd	nd	nd	---	nd		
	Jan-2010	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Aug-15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Nov-19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Jan-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
GBR-33	Sep-89	nd	nd	nd	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	---	---	---	nd	nd	nd	nd	---	nd		
	Jan-21 (Dry or Obstructed)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-34	Aug-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
GBR-35	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
GBR-39	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
GBR-40	Jan-88	nd	nd	nd	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	nd	nd	---	---	nd	nd	nd	nd	---	nd	
	Jan-21 (Dry)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-41	Jan-88	nd	nd	nd	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	nd	nd	---	---	nd	nd	nd	nd	---	nd	
	Jan-21 (Dry)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-48	Nov-88	nd	nd	nd	31	nd	25	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	nd	nd	---	---	nd	nd	nd	nd	---	nd	
	Jan-95	nd	nd	---	0.30	---	---	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	601	nd	nd	---	---	nd	nd	3.6	nd	---	nd	
	Dec-00	nd	nd	---	0.50	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	3.3	nd	nd	---	---	nd	nd	2.6	0.40	---	nd	
	Dec-05	nd	nd	---	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	2.3	nd	nd	---	---	nd	nd	0.90	nd	---	nd	
	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Aug-15	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<6.0	<6.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<4.0	<2.0			
	Nov-19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Jan-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
GBR-49	Nov-88	nd	nd	nd	6.8	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	15	88	nd	---	---	6.6	nd	11	nd	---	nd	
	Jan-95	nd	nd	---	0.40	---	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	nd	nd	---	---	nd	nd	4.2	nd	---	nd		
	Dec-00	nd	nd	---	1.0	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	4.0	nd	nd	---	---	nd	nd	2.3	nd	---	nd	
	Dec-05	nd	nd	---	nd	nd	nd	---	---	---	---	---	---	---	nd	---	---	---	---	---	---	nd	0.60	nd	nd	---	---	nd	nd	nd	nd	---	nd	
	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0		
	Aug-15	<1.0	<1.0	<1.0	<																													

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	NE
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GRW-1/GBR-38	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Mar-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-2/GBR-42	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-3/GBR-29	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-05		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	0.66	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Nov-19		<0.50	<0.50	<0.50	<0.50	0.98	4.3	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
GRW-4/GBR-43	Feb-21		0.12	<0.10	<0.10	<0.10	0.36	1.5	<0.10	0.34	0.32	0.24	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-5/ GBR-37	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.50	<0.50	<0.50	<0.50	3.3	9.0	<0.50	1.5	<1.0	1.1	<0.50	<0.50	<1.0	<1.0	<0.35	<0.50	<0.50	<1.5
GRW-6/GBR-44	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-05		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Nov-19		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.64	0.38	0.42	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-9/GBR-6	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	<0.10	<0.10	<0.10	0.18	0.38	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-10/GBR-36	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	0.22	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-11/GBR-27	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GRW-12/GBR-28	May-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.24	0.18	<0.10	<0.10	3.0	1.3	<0.10	0.46	0.34	0.30	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	NE
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GRW-13/GBR-14	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Jan-00		nd	nd	nd											nd				
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.20	<0.20	<0.070	<0.10	<0.10	<0.30
GBR-5*	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.44	<0.10	<0.10	<0.10	0.54	1.7	<0.10	<0.10	<0.20	0.24	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	0.22	<0.30
GBR-7	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Not Sampled, PSH)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-8	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	0.20	0.20	<0.10	0.96	1.9	<0.10	0.46	0.38	0.36	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-9	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	0.16	0.18	<0.10	<0.10	0.24	<0.10	0.28	<0.20	0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-10	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-11	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.36	0.34	0.24	<0.10	0.36	1.4	<0.10	0.28	0.36	0.22	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-13*	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	0.16	0.20	<0.10	0.24	0.34	<0.10	0.32	0.36	0.36	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-15	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	0.26	<0.10	0.30	<0.20	0.22	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	NE
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR-17	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
GBR-18*	Nov-19		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	0.07	<0.10	<0.10	<0.30
GBR-20*	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		2.6	0.72	0.60	<0.10	0.30	1.9	<0.10	0.30	0.38	0.28	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-21S*	Jan-21 (Dry)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-21D*	May-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	0.34	0.22	<0.10	5.0	9.0	0.26	1.0	0.56	0.84	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-22*	May-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Not Sampled, PSH)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-23*	Jan-21 (Dry or Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-24S*	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-24D*	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		10.0	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Jan-95		nd	nd	nd	nd	nd	1.2	0.34	nd	nd	0.07	nd	0.064	nd	nd	nd	nd	nd	nd
	Jan-00		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-05		nd	5.4	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-10		5.8	7.7	4.9	<2.5	<5.0	1.0	0.62	<0.60	<0.30	<0.30	<0.070	<0.20	<0.10	<0.070	<0.070	<0.070	<0.080	<0.080
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Nov-19		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Feb-21		<0.10	<0.10	<0.10	<0.10	0.18	0.28	<0.10	0.28	0.36	0.22	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	NE
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR-25*	May-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	1.2	<0.10	<0.10	1.2	2.0	0.66	0.64	0.52	0.90	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-26	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (No Recovery)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-30	Dec-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Jan-95		nd	nd	nd	nd	nd	nd	0.031	nd	nd	nd	nd	0.11	0.04	nd	nd	nd	nd	nd
	Jan-00		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Nov-19		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-31	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Jan-00		nd	nd	nd	---	---	---	---	---	---	---	---	---	---	---	nd	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Nov-19		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-32*	Aug-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan 2010		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Nov-19		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-33	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry or Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-34	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.10	0.24	0.18	<0.10	0.30	0.62	<0.10	0.30	0.36	0.22	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-35	Feb-21		25	220	37	<1.0	47	61	87	16	9.4	27	<1.0	2.6	<1.0	<1.0	<0.70	<1.0	<1.0	<3.0

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	NE
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR-39	Feb-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
GBR-40	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-41	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-48	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Nov-19		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-49	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-50	Nov-19		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-52/GRW-8	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Nov-19		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-05		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 6
GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Polycyclic Aromatic Hydrocarbons (PAHs)	naphthalene	1-methylnaphthalene	2-methylnaphthalene	acenaphthylene	acenaphthene	fluorene	phenanthrene	anthracene	fluoranthene	pyrene	benz(a)anthracene	chrysene	benzo(b)fluoranthene	benzo(k)fluoranthene	benzo(a)pyrene	dibenz(a,h)anthracene	benzo(g,h,i)perylene	indeno(1,2,3-cd)pyrene
Unit			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
NMWQCC Standard			combined 30			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE	
EPA Regional Screening Level (1)			1.17	11.4	35.9	NE	535	294	NE	1,770	802	121	0.298	251	2.51	25.10	0.251	0.251	NE	2.51
Lee Acres Alluvial Aquifer Background Concentration (2)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Background Concentration (3)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
SHS-9	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21		<0.10	0.48	0.22	<0.10	1.3	3.0	<0.10	0.40	0.40	0.34	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30
SHS-13	Jan-21		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10	<0.070	<0.10	<0.10	<0.30

Notes:

- (1) - EPA Regional Screening Level for tap water using hazard quotient of 1.0 (non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (carcinogens)
(2) - "Background" Concentration Proposed in Lee Acres DRAFT Remedial Investigation Report Prepared for the US Bureau of Land Management (dated February 1992)
(3) - Regional Background Concentrations Established in Document Titled *Hydrogeology and Water Resources of San Juan Basin, New Mexico* , Stone et al., dated 1983
(4) - Contaminant Concentrations Established as the "Remedial Goals" or "Background" Concentrations for the Lee Acres Superfund Site. Based on the Lee Acres DRAFT Remedial Investigation Report and Record of Decision (dated May 2004).
(5) - Background Threshold Value Established for the Former Giant Bloomfield Refinery

* - asterisk indicates that the well is screened withing the bedrock aquifer, no asterisk indicates that a well is screened in the alluvial aquifer

--- - not tested

µg/L - micrograms per liter

NE - not established

NMWQCC - New Mexico Water Quality Control Commission

PSH - phase separated hydrocarbons

USEPA - United States Environmental Protection Agency

BOLD - bold and yellow highlights indicates concentration exceeds the NMWQCC standard, where NMWQCC are not established, concentrations compared to EPA regional screening levels

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals	arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002
EPA Regional Screening Level (1)			0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002
Lee Acres Alluvial Aquifer Background Concentration (2)			nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE
Lee Acres Regional Background Concentration (3)			NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE
GRW-1/GBR-38	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Mar-21		0.0020	0.014	<0.0010	<0.00050	<0.0060	0.86	0.0011	2.9	<0.00020	0.012	0.0024	<0.00050	<0.00025
GRW-2/GBR-42	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.023	0.066	<0.0010	<0.00050	0.018	22	<0.00050	3.3	<0.00020	0.26	<0.0010	<0.00050	<0.00025
GRW-3/GBR-29	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-05		---	---	---	---	---	---	---	---	---	6.8	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	0.89	---	0.69	---	---	---	---	---
	Nov-19		---	---	---	---	---	2.3	---	1.4	---	---	---	---	---
GRW-4/GBR-43	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0028	0.024	<0.0010	<0.00050	0.013	3.3	0.00098	4.4	<0.00020	0.016	<0.0010	<0.00050	<0.00025
GRW-5/ GBR-37	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0028	0.048	<0.0010	<0.00050	<0.0060	1.8	0.0015	5.7	<0.00020	0.015	<0.0010	<0.00050	<0.00025
GRW-6/GBR-44	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-05		---	---	---	---	---	---	---	---	---	1.80	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	15	---	18	---	---	---	---	---
	Nov-19		---	---	---	---	---	8.0	---	5.9	---	---	---	---	---
	Feb-21		<0.0010	0.025	<0.0010	<0.00050	<0.0060	1.6	<0.00050	2.1	<0.00020	0.0058	<0.0010	<0.00050	<0.00025
GRW-9/GBR-6	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.0010	0.034	<0.0010	<0.00050	<0.0060	1.9	<0.00050	0.53	<0.00020	0.0027	<0.0010	<0.00050	<0.00025
GRW-10/GBR-36	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.0010	0.017	<0.0010	<0.00050	<0.0060	1.8	0.0015	1.0	<0.00020	0.00	<0.0010	<0.00050	<0.00025
GRW-11/GBR-27	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.0010	0.017	<0.0010	<0.00050	<0.0060	5.9	0.0024	2.4	<0.00020	0.0012	0.0020	<0.00050	<0.00025

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals	arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002
EPA Regional Screening Level (1)			0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002
Lee Acres Alluvial Aquifer Background Concentration (2)			nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE
Lee Acres Regional Background Concentration (3)			NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE
GRW-12/GBR-28	May-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.014	0.087	<0.0010	<0.00050	<0.0060	14	0.0012	0.47	<0.00020	0.0070	<0.0010	<0.00050	<0.00025
GRW-13/GBR-14	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.0010	0.0082	<0.0010	<0.00050	<0.0060	0.32	0.00059	1.1	<0.00020	0.015	0.017	<0.00050	<0.00025
GBR-5*	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0043	0.012	<0.0010	<0.00050	0.054	4.5	0.0063	4.4	<0.00020	0.0049	0.0026	<0.00050	<0.00025
GBR-7	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Not Sampled, PSH)		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-8	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.062	0.35	<0.0010	<0.00050	<0.0060	52	0.038	3.6	<0.00020	0.018	0.0027	<0.00050	<0.00025
GBR-9	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0026	0.018	<0.0010	<0.00050	<0.0060	1.6	0.00063	0.43	<0.00020	0.016	<0.0010	<0.00050	<0.00025
GBR-10	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-11	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0015	0.15	<0.0010	<0.00050	<0.0060	44	0.0018	0.93	<0.00020	0.0061	<0.0010	<0.00050	<0.00025
GBR-13*	Jun-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.0018	0.042	<0.0010	<0.00050	<0.0060	3.1	0.0048	4.7	<0.00020	0.011	<0.0050	<0.00050	<0.00025
GBR-15	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		<0.0010	0.014	<0.0010	<0.00050	<0.0060	0.59	0.00067	0.48	<0.00020	0.0030	<0.0010	<0.00050	<0.00025

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals													
		arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium	
Unit		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
NMWQCC Standard		0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002	
EPA Regional Screening Level (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002	
Lee Acres Alluvial Aquifer Background Concentration (2)		nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE	
Lee Acres Regional Background Concentration (3)		NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE	
Lee Acres RI/ROD Remedial Goals (4)		0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE	
GBR Background Concentrations (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE	
GBR-17	Jun-86	0.01	nd	nd	nd	nd	nd	nd	nd	nd	0.10	---	nd	---	
	Dec-88	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Dec-00	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Dec-05	---	---	---	---	---	---	---	---	---	4.4	---	---	---	
	Jan-10	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Aug-15	---	---	---	---	---	3.60	---	<0.0020	---	---	---	---	---	
	Nov-19	---	---	---	---	---	120	---	3.80	---	---	---	---	---	
Jan-21	<0.0010	0.014	<0.0010	<0.00050	0.011	0.79	0.00064	0.014	<0.00020	0.0056	0.0030	<0.00050	<0.00025		
GBR-18*	Jun-86	---	nd	nd	nd	nd	nd	nd	nd	---	nd	---	nd	---	
	Jul-94	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Mar-21	<0.0050	0.040	<0.0050	<0.0025	0.013	68	0.031	0.25	<0.00020	0.020	<0.0050	<0.0025	<0.0012	
GBR-20*	Jun-86	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Aug-15	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Feb-21	0.0026	0.23	<0.0010	<0.00050	<0.0060	22	0.0034	0.53	<0.00020	0.0073	<0.0010	<0.00050	<0.00025	
GBR-21S*	Jan-21 (Dry)	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-21D*	May-88	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Aug-15	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Feb-21	<0.0010	0.27	<0.0010	<0.00050	<0.0060	0.97	0.0022	0.33	<0.00020	0.014	<0.0010	<0.00050	<0.00025	
GBR-22*	May-86	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Aug-15	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Jan-21 (Not Sampled, PSH)	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-23*	Jan-21 (Dry or Obstructed)	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-24S*	Nov-86	nd	0.10	nd	nd	nd	nd	nd	43	---	0.60	---	nd	---	
	Jan-21 (Obstructed)	---	---	---	---	---	---	---	---	---	---	---	---	---	
GBR-24D*	Nov-86	nd	0.10	nd	nd	nd	nd	nd	43	---	0.60	---	nd	---	
	Jun-88	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Jan-95	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Jan-00	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Jan-05	---	---	---	---	---	---	---	---	---	9.2	---	---	---	
	Jan-10	---	---	---	---	---	---	---	---	---	---	---	---	---	
	Aug-15	---	---	---	---	---	11	---	1.8	---	---	---	---	---	
	Nov-19	---	---	---	---	---	8.3	---	1.4	---	---	---	---	---	
Feb-21	<0.0010	0.016	<0.0010	<0.00050	<0.0060	0.46	0.0010	0.9	<0.00020	0.0037	<0.0010	<0.00050	<0.00025		

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals	arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002
EPA Regional Screening Level (1)			0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002
Lee Acres Alluvial Aquifer Background Concentration (2)			nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE
Lee Acres Regional Background Concentration (3)			NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE
GBR-25*	May-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.014	0.48	<0.0010	<0.00050	<0.0060	26	0.028	2.7	<0.00020	0.0075	0.0031	<0.00050	<0.00025
GBR-26	Oct-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (No Recovery)		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-30	Dec-86		nd	nd	nd	0.19	nd	nd	nd	2.2	---	nd	---	nd	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	7.6	---	0.50	---	---	---	---	---
	Nov-19		---	---	---	---	---	43	---	4.2	---	---	---	---	---
	Feb-21		0.0051	0.33	0.0010	<0.00050	0.014	23	0.015	0.75	<0.00020	0.027	0.013	<0.00050	<0.00025
GBR-31	Nov-86		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	2.4	---	0.45	---	---	---	---	---
	Nov-19		---	---	---	---	---	15	---	2.7	---	---	---	---	---
	Jan-21		<0.0010	0.057	<0.0010	<0.00050	<0.0060	2.1	0.0056	0.23	<0.00020	0.0056	0.0063	<0.00050	<0.00025
GBR-32*	Aug-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	9.00	---	---	---	---
	Jan 2010		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.0050	0.011	<0.0020	<0.0020	0.020	0.26	<0.00050	0.56	<0.00020	0.30	0.020	<0.0050	<0.00050
	Nov-19		<0.0010	0.034	<0.010	<0.010	0.10	3.6	0.0012	2.10	<0.00020	0.07	0.0029	<0.025	<0.00050
	Jan-21		0.0013	0.028	<0.0010	<0.00050	0.33	8.30	0.0011	1.1	<0.00020	0.061	0.0044	<0.00050	<0.00025
GBR-33	Sep-89		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry or Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals	arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002
EPA Regional Screening Level (1)			0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002
Lee Acres Alluvial Aquifer Background Concentration (2)			nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE
Lee Acres Regional Background Concentration (3)			NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE
GBR-34	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Feb-21		0.023	1.80	<0.0010	<0.00050	<0.0060	20	0.0064	2.1	<0.00020	0.015	<0.0010	<0.00050	<0.00025
GBR-35	Feb-21		0.012	2.7	<0.0010	0.0023	<0.0060	26	0.032	1.8	<0.00020	0.015	<0.0010	<0.00050	<0.00025
GBR-39	Feb-21		<0.0010	0.091	<0.0010	<0.00050	0.043	6.9	0.0022	0.19	<0.00020	0.030	<0.0010	<0.00050	0.00045
GBR-40	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-41	Jun-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-48	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	10.0	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		<0.050	0.67	0.011	<0.0020	0.95	170	0.11	6.40	0.00046	0.28	0.089	<0.0050	0.0023
	Nov-19		0.0076	0.31	0.0038	<0.0020	0.23	48	0.031	1.80	<0.00020	0.10	0.018	<0.0050	0.0005
GBR-49	Jan-21		0.0050	0.20	0.00200	<0.00050	0.050	29	0.016	0.67	<0.00020	0.068	0.02	<0.00050	0.00038
	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	<20	---	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		0.0057	0.058	<0.0020	<0.0020	0.38	7.1	0.0038	0.54	<0.00020	0.11	0.0069	<0.0050	<0.00050
GBR-50	Nov-19		<0.0010	0.021	<0.0020	<0.0020	0.10	1.4	0.00083	0.87	<0.00020	0.12	0.0011	0.0063	<0.00050
	Jan-21 (Obstructed)		---	---	---	---	---	---	---	---	---	---	---	---	---
	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Dec-05		---	---	---	---	---	---	---	---	---	10	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
GBR-50	Aug-15		<0.0050	0.024	<0.0020	<0.0020	0.073	2.2	0.0013	0.19	<0.00020	0.04	0.0089	<0.0050	<0.00050
	Nov-19		<0.0010	0.018	<0.0020	<0.0020	0.039	2.2	0.0010	0.14	<0.00020	0.06	0.0083	0.0079	<0.00050
	Jan-21		<0.0010	0.012	<0.0010	<0.00050	0.035	2.5	0.0068	0.16	<0.00020	0.013	0.010	<0.00050	<0.00025

TABLE 7
GROUNDWATER ANALYTICAL RESULTS - TOTAL METALS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Total Metals	arsenic	barium	beryllium	cadmium	chromium (total)	iron	lead	manganese	mercury	nickel	selenium	silver	thallium
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	0.002
EPA Regional Screening Level (1)			0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	0.0002
Lee Acres Alluvial Aquifer Background Concentration (2)			nd	nd	nd	nd	0.0144 - 0.113	nd - 1.48	nd	0.0161 - 0.423	nd	nd	0.008 - 0.0095	0.0273 - 0.0309	NE
Lee Acres Regional Background Concentration (3)			NE	0 - 3.4	NE	0.001 - 0.018	0.001 - 0.060	0.010 - 16	0 - 0.055	0 - 2.6	NE	NE	0.002 - 0.04	NE	NE
Lee Acres RI/ROD Remedial Goals (4)			0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	NE
GBR Background Concentrations (5)			NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	NE
GBR-52/GRW-8	Nov-88		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-95		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-00		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-05		---	---	---	---	---	---	---	---	---	2.0	---	---	---
	Jan-10		---	---	---	---	---	---	---	---	---	---	---	---	---
	Aug-15		---	---	---	---	---	8.20	---	0.15	---	---	---	---	---
	Nov-19		---	---	---	---	---	1.40	---	0.026	---	---	---	---	---
	Jan-21		<0.0010	0.016	<0.0010	<0.00050	<0.0060	0.32	<0.00050	0.0094	<0.00020	<0.0010	0.0052	<0.00050	<0.00025
SHS-9	Aug-15		---	---	---	---	---	---	---	---	---	---	---	---	---
	Jan-21		<0.0010	0.62	<0.0010	<0.00050	<0.0060	1.4	0.0032	0.22	<0.00020	0.011	<0.0010	<0.00050	<0.00025
SHS-13	Jan-21		0.0018	0.083	<0.0010	<0.00050	<0.0060	0.26	<0.00050	3.7	<0.00020	0.010	<0.0010	<0.00050	<0.0025

Notes:
(1) - EPA Regional Screening Level for tap water using hazard quotient of 1.0 (non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (carcinogens)
(2) - "Background" Concentration Proposed in Lee Acres DRAFT Remedial Investigation Report Prepared for the US Bureau of Land Management (dated February 1992)
(3) - Regional Background Concentrations Established in Document Titled *Hydrogeology and Water Resources of San Juan Basin, New Mexico* , Stone et al., dated 1983
(4) - Contaminant Concentrations Established as the "Remedial Goals" or "Background" Concentrations for the Lee Acres Superfund Site, Based on the Lee Acres DRAFT Remedial Investigation Report and Record of Decision (dated May 2004).
(5) - Background Threshold Value Established for the Former Giant Bloomfield Refinery
* - asterisk indicates that the well is screened withing the bedrock aquifer, no asterisk indicates that a well is screened in the alluvial aquifer
--- - not tested
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
PSH - phase separated hydrocarbons
USEPA - United States Environmental Protection Agency
BOLD - bold and highlighted cells indicates concentration exceeds the greater of GBR background concentrations or NMWQCC standards; where NMWQCC standards are not established, concentrations compared to EPA regional screening levels

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	total dissolved solids
Unit		mg/L	mg/L	mg/L	mg/L	mg/L	
NMWQCC Standard		250	1.6	NE	600	1,000	
EPA Regional Screening Level (1)		NE	0.799	NE	NE	NE	
Lee Acres Alluvial Aquifer Background Concentration (2)		6.4 - 404	NE	1.2 - 4.9	420 - 2,120	760 - 3,600	
Lee Acres Regional Background Concentration (3)		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE	
Lee Acres RI/ROD Remedial Goals (4)		34,000	NE	10	14,000	10,000	
GBR Background Concentrations (5)		560	NE	NE	2,800	4,599	
GRW-1/GBR-38	Jun-88	---	---	---	---	---	---
	Mar-21	40	0.85	<0.50	2,100	3,540	
GRW-2/GBR-42	Sep-89	---	---	---	---	---	---
	Feb-21	100	0.59	<0.50	660	1,880	
GRW-3/GBR-29	Jun-86	---	---	---	---	---	---
	Jun-88	---	---	---	---	---	---
	Jan-00	148	---	---	145	1,540	
	Jan-05	36	---	---	2,000	3,300	
	Jan-10	---	---	---	---	---	---
	Aug-15	38	0.95	<0.10	1,900	3,320	
	Nov-19	100	<0.50	<0.50	450	1,990	
	Feb-21	110	1.0	<0.50	440	1,860	
GRW-4/GBR-43	Sep-89	---	---	---	---	---	---
	Feb-21	120	1.10	<0.50	1,300	2,790	
GRW-5/ GBR-37	Jun-88	---	---	---	---	---	---
	Feb-21	91	1.0	<0.50	1,500	2,790	
GRW-6/GBR-44	Jun-88	---	---	---	---	---	---
	Jan-00	162	---	---	395	1,680	
	Jan-05	96	---	---	440	1,600	
	Jan-10	---	---	---	---	---	---
	Aug-15	88	0.55	<1.0	1,400	3,220	
	Nov-19	94	0.60	<0.50	1,200	2,470	
GRW-9/GBR-6	Feb-21	97	0.93	<0.50	1,500	2,570	
	Nov-86	---	---	---	---	---	---
	Dec-88	---	---	---	---	---	---
GRW-10/GBR-36	Feb-21	59	<0.50	<0.50	1,900	3,260	
	Jun-88	---	---	---	---	---	---
GRW-11/GBR-27	Feb-21	51	1.1	<0.50	2,200	3,460	
	Jun-86	---	---	---	---	---	---
GRW-12/GBR-28	Feb-21	29	1.3	<0.50	2,400	3,880	
	May-86	---	---	---	---	---	---
	Jun-88	---	---	---	---	---	---
GRW-13/GBR-14	Feb-21	230	0.74	<0.50	500	1,880	
	Nov-86	---	---	---	---	---	---
	Dec-88	---	---	---	---	---	---
	Jan-95	---	---	---	---	---	---
GBR-5*	Jan-00	264	---	---	1,640	510	
	Feb-21	220	0.85	1.3	1,900	3,340	
	Jun-86	---	---	---	---	---	---
GBR-7	Feb-21	89	<0.50	<0.50	1,700	3,290	
	Nov-86	---	---	---	---	---	---
GBR-7	Jan-21 (Not Sampled, PSH)	---	---	---	---	---	---

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	total dissolved solids
Unit		mg/L	mg/L	mg/L	mg/L	mg/L	
NMWQCC Standard		250	1.6	NE	600	1,000	
EPA Regional Screening Level (1)		NE	0.799	NE	NE	NE	
Lee Acres Alluvial Aquifer Background Concentration (2)		6.4 - 404	NE	1.2 - 4.9	420 - 2,120	760 - 3,600	
Lee Acres Regional Background Concentration (3)		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE	
Lee Acres RI/ROD Remedial Goals (4)		34,000	NE	10	14,000	10,000	
GBR Background Concentrations (5)		560	NE	NE	2,800	4,599	
GBR-8	Oct-86	---	---	---	---	---	---
	Dec-88	---	---	---	---	---	---
	Aug-15	86	---	---	---	---	---
	Feb-21	100	0.59	<0.50	1,300	2,430	
GBR-9	Nov-86	---	---	---	---	---	---
	Aug-88	---	---	---	---	---	---
	Feb-21	110	0.88	<0.50	1,200	2,520	
GBR-10	Nov-86	---	---	---	---	---	---
	Jan-21 (Obstructed)	---	---	---	---	---	---
GBR-11	Jun-86	---	---	---	---	---	---
	Aug-15	95	---	---	---	---	---
	Feb-21	110	<0.50	<0.50	960	1,890	
GBR-13*	Jun-86	---	---	---	---	---	---
	Dec-88	---	---	---	---	---	---
	Feb-21	110	1.1	<0.50	1,200	2,380	
GBR-15	Oct-86	---	---	---	---	---	---
	Dec-88	---	---	---	---	---	---
	Jan-95	---	---	---	---	---	---
	Jan-00	313	---	---	1,210	2,910	
	Feb-21	92	0.94	<0.10	2,000	3,460	
GBR-17	Jun-86	1,005	---	---	1,202	4,355	
	Dec-88	370	---	---	2,270	3,996	
	Jan-95	---	---	---	---	---	---
	Dec-00	4.0	---	---	1,060	1,930	
	Dec-05	48	---	---	1,000	2,200	
	Jan-10	---	---	---	---	---	---
	Aug-15	43	0.68	5.8	1,100	1,960	
	Nov-19	55	<0.50	5.2	1,200	2,150	
GBR-18*	Jun-86	262	---	---	3,141	4,935	
	Jul-94	---	---	---	---	---	---
	Mar-21	43	<0.50	1.8	190	5,100	
GBR-20*	Jun-86	---	---	---	---	---	---
	Aug-15	96	---	---	---	---	---
	Feb-21	89	0.66	<0.50	250	1,850	
GBR-21S*	Jan-21 (Dry)	---	---	---	---	---	---
GBR-21D*	May-88	---	---	---	---	---	---
	Aug-15	330	---	---	---	---	---
	Feb-21	310	0.66	<0.50	780	2,220	
GBR-22*	May-86	---	---	---	---	---	---
	Aug-15	470	---	---	---	---	---
	Jan-21 (Not Sampled, PSH)	---	---	---	---	---	---

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	total dissolved solids
Unit		mg/L	mg/L	mg/L	mg/L	mg/L	
NMWQCC Standard		250	1.6	NE	600	1,000	
EPA Regional Screening Level (1)		NE	0.799	NE	NE	NE	
Lee Acres Alluvial Aquifer Background Concentration (2)		6.4 - 404	NE	1.2 - 4.9	420 - 2,120	760 - 3,600	
Lee Acres Regional Background Concentration (3)		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE	
Lee Acres RI/ROD Remedial Goals (4)		34,000	NE	10	14,000	10,000	
GBR Background Concentrations (5)		560	NE	NE	2,800	4,599	
GBR-23*	Jan-21 (Dry or Obstructed)	---	---	---	---	---	---
GBR-24S*	Nov-86	618	---	---	943	2,826	
	Jan-21 (Obstructed)	---	---	---	---	---	---
GBR-24D*	Nov-86	618	---	---	943	2,826	
	Jun-88	630	---	---	1,640	3,487	
	Jan-95	---	---	---	---	---	---
	Jan-00	610	---	---	1,380	3,550	
	Jan-05	310	---	---	1,900	3,400	
	Jan-10	---	---	---	---	---	---
	Aug-15	160	0.96	0.23	2,100	3,380	
	Nov-19	170	0.58	<1.0	2,100	3,420	
	Feb-21	200	0.52	<0.10	2,100	3,360	
GBR-25*	May-86	---	---	---	---	---	---
	Aug-15	520	---	---	---	---	---
	Feb-21	390	0.77	<0.50	660	2,480	
GBR-26	Oct-86	---	---	---	---	---	---
	Aug-15	170	---	---	---	---	---
	Jan-21 (No Recovery)	---	---	---	---	---	---
GBR-30	Dec-86	133	---	---	389	1,308	
	Jun-88	370	---	---	2,270	3,996	
	Jan-95	---	---	---	---	---	---
	Jan-00	310	---	---	1,460	3,140	
	Jan-10	---	---	---	---	---	---
	Aug-15	310	0.59	5.2	1,600	3,020	
	Nov-19	280	<0.50	1.4	1,700	3,040	
	Feb-21	220	0.42	0.95	1,900	3,150	
GBR-31	Nov-86	---	---	---	---	---	---
	Jun-88	---	---	---	---	---	---
	Jan-95	---	---	---	---	---	---
	Jan-00	181	---	---	1,560	3,030	
	Jan-10	---	---	---	---	---	---
	Aug-15	250	0.63	2.6	1,700	3,170	
	Nov-19	290	<0.50	<0.50	1,600	3,220	
	Jan-21	85	0.54	7.1	1,600	2,770	
GBR-32*	Aug-88	588	---	---	1,830	4,400	
	Jan-95	569	---	---	1,770	3,830	
	Dec-00	735	---	---	2,190	4,840	
	Dec-05	520	---	---	1,700	4,400	
	Jan 2010	---	---	---	---	---	---
	Aug-15	370	0.49	3.1	2,000	3,830	
	Nov-19	190	<0.50	<1.0	1,700	3,200	
	Jan-21	170	0.37	<1.0	1,900	3,230	
GBR-33	Sep-89	---	---	---	---	---	---
	Jan-21 (Dry or Obstructed)	---	---	---	---	---	---

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	total dissolved solids
Unit			mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			250	1.6	NE	600	1,000
EPA Regional Screening Level (1)			NE	0.799	NE	NE	NE
Lee Acres Alluvial Aquifer Background Concentration (2)			6.4 - 404	NE	1.2 - 4.9	420 - 2,120	760 - 3,600
Lee Acres Regional Background Concentration (3)			2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE
Lee Acres RI/ROD Remedial Goals (4)			34,000	NE	10	14,000	10,000
GBR Background Concentrations (5)			560	NE	NE	2,800	4,599
GBR-34	Aug-15		280	---	---	---	---
	Feb-21		270	0.86	<0.50	49	1,440
GBR-35	Feb-21		250	0.92	<0.50	10	1,230
GBR-39	Feb-21		160	0.54	<0.50	1,000	1,860
GBR-40	Jun-88		---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---
GBR-41	Jun-88		---	---	---	---	---
	Jan-21 (Dry)		---	---	---	---	---
GBR-48	Nov-88		1,300	4.7	8.0	1,900	5,900
	Jan-95		708	---	---	1,940	4,740
	Dec-00		1,200	---	---	1,990	5,340
	Dec-05		420	---	---	1,300	3,400
	Jan-10		---	---	---	---	---
	Aug-15		370	0.45	7.3	2,100	3,730
	Nov-19		270	<0.50	1.9	2,000	3,450
GBR-49	Jan-21		290	0.39	2.1	2,100	3,720
	Nov-88		790	3.6	5.1	1,800	---
	Jan-95		225	---	---	1,530	3,100
	Dec-00		426	---	---	1,910	3,800
	Dec-05		530	---	---	1,900	4,900
	Jan-10		---	---	---	---	---
	Aug-15		180	0.62	<0.10	1,500	2,840
GBR-50	Nov-19		97	<0.50	<1.0	1,500	2,710
	Jan-21 (Obstructed)		---	---	---	---	---
	Nov-88		110	2.3	1.8	1,300	---
	Jan-95		39	---	---	1,940	2,690
	Dec-00		4.0	---	---	1,540	2,580
	Dec-05		51	---	---	1,300	2,700
	Jan-10		---	---	---	---	---
GBR-52/GRW-8	Aug-15		44	0.83	5.0	1,700	2,760
	Nov-19		69	<0.50	6.9	1,700	2,910
	Jan-21		60	0.56	2.4	2,100	3,100
	Nov-88		---	---	---	---	---
	Jan-95		---	---	---	---	---
	Jan-00		96	---	---	1,500	2,700
	Jan-05		67	---	---	1,700	2,800
GBR-52/GRW-8	Jan-10		---	---	---	---	---
	Aug-15		65	0.71	5.7	1,400	2,840
	Nov-19		60	<0.50	6.9	1,500	2,600
	Jan-21		56	0.64	7.9	1,600	2,590

TABLE 8
GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY PARAMETERS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID		Sample Date	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	total dissolved solids
Unit			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard			250	1.6	NE	600	1,000	
EPA Regional Screening Level (1)			NE	0.799	NE	NE	NE	
Lee Acres Alluvial Aquifer Background Concentration (2)			6.4 - 404	NE	1.2 - 4.9	420 - 2,120	760 - 3,600	
Lee Acres Regional Background Concentration (3)			2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE	
Lee Acres RI/ROD Remedial Goals (4)			34,000	NE	10	14,000	10,000	
GBR Background Concentrations (5)			560	NE	NE	2,800	4,599	
SHS-9	Aug-15		96	---	---	---	---	
	Jan-21		130	0.74	<1.0	26	1,540	
SHS-13	Jan-21		330	0.65	1.6	360	1,690	

Notes:

- (1) - EPA Regional Screening Level for tap water using hazard quotient of 1.0 (non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (carcinogens)
 (2) - "Background" Concentration Proposed in Lee Acres DRAFT Remedial Investigation Report Prepared for the US Bureau of Land Management (dated February 1992)
 (3) - Regional Background Concentrations Established in Document Titled *Hydrogeology and Water Resources of San Juan Basin, New Mexico*, Stone et al., dated 1983
 (4) - Contaminant Concentrations Established as the "Remedial Goals" or "Background" Concentrations for the Lee Acres Superfund Site. Based on the Lee Acres DRAFT Remedial Investigation Report and Record of Decision (dated May 2004).
 (5) - Background Threshold Value Established for the Former Giant Bloomfield Refinery

* - asterisk indicates that the well is screened withing the bedrock aquifer, no asterisk indicates that a well is screened in the alluvial aquifer

--- - not tested

mg/L - milligrams per liter

NE - not established

NMWQCC - New Mexico Water Quality Control Commission

PSH - phase separated hydrocarbons

USEPA - United States Environmental Protection Agency

BOLD - bold and highlighted cells indicates concentration exceeds the greater of GBR background concentrations or NMWQCC standards; where NMWQCC standards are not established, concentrations compared to EPA regional screening levels

TABLE 9
GROUNDWATER ANALYTICAL RESULTS - BLM SPLIT SAMPLING OF UPGRADIENT WELLS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Sampling Method	Metals	total arsenic	dissolved arsenic	relative percent difference*	total barium	dissolved barium	relative percent difference*	total beryllium	dissolved beryllium	relative percent difference*	total cadmium	dissolved cadmium	relative percent difference*	total chromium	dissolved chromium	relative percent difference*	total iron	dissolved iron	relative percent difference*	total lead	dissolved lead	relative percent difference*
Unit				mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---
NMWQCC Standard				0.1	0.1	---	2	2	---	0.004	0.004	---	0.005	0.005	---	0.05	0.05	---	1	1	---	0.015	0.015	---
EPA Regional Screening Level (1)				0.000517	0.000517	---	3.77	3.77	---	0.0246	0.0246	---	0.0092	0.0092	---	22.5	22.5	---	14	14	---	0.015	0.015	---
Lee Acres Alluvial Aquifer Background Concentration (2)				nd	nd	---	nd	nd	---	nd	nd	---	nd	nd	---	0.0144 - 0.113	0.0144 - 0.113	---	nd - 1.48	nd - 1.48	---	nd	nd	---
Lee Acres Regional Background Concentration (3)				NE	NE	---	0 - 3.4	0 - 3.4	---	NE	NE	---	0.001 - 0.018	0.001 - 0.018	---	0.001 - 0.060	0.001 - 0.060	---	0.010 - 16	0.010 - 16	---	0 - 0.055	0 - 0.055	---
Lee Acres RI/ROD Remedial Goals (4)				0.05	0.05	---	1.0	1.0	---	NE	NE	---	0.010	0.010	---	0.113	0.113	---	16	16	---	0.050	0.050	---
GBR Background Concentrations (5)				NE	NE	---	NE	NE	---	NE	NE	---	NE	NE	---	1.29	1.29	---	97.8	97.8	---	NE	NE	---
GBR-17	Jan-21	Bailer		<0.0010	---	---	0.014	---	---	<0.0010	---	---	<0.00050	---	---	0.011	---	---	0.79	---	---	0.00064	---	---
	Apr-21	Low Flow		<0.0010	<0.0010	---	0.011	0.009	-20%	<0.0010	<0.0010	---	<0.00050	<0.00050	---	0.0033	0.0018	-59%	<0.050	<0.020	---	<0.00050	<0.00050	---
	relative percent difference**			---	---	---	-24%	---	---	---	---	---	---	---	---	-108%	---	---	-188%	---	---	-88%		
GBR-32 (6)	Jan-21	Bailer		0.0013	---	---	0.028	---	---	<0.0010	---	---	<0.00050	---	---	0.33	---	---	8.30	---	---	0.0011	---	---
	Apr-21	Low Flow		0.0013	<0.0010	-89%	0.054	0.012	-127%	<0.0010	<0.0010	---	<0.00050	<0.00050	---	0.013	<0.0010	-185%	6.0	<0.020	-199%	0.0025	<0.00050	-164%
	relative percent difference**			0%	---	---	63%	---	---	---	---	---	---	---	---	-185%	---	---	-32%	---	---	78%		
GBR-48	Jan-21	Bailer		0.0050	---	---	0.20	---	---	0.00200	---	---	<0.00050	---	---	0.050	---	---	29	---	---	0.016	---	---
	Apr-21	Low Flow		0.0028	<0.0010	-139%	0.12	0.012	-164%	<0.0010	<0.0010	---	<0.00050	<0.00050	---	0.042	0.0016	-185%	17	<0.020	-200%	0.0082	<0.00050	-188%
	relative percent difference**			-56%	---	---	-50%	---	---	-120%	---	---	---	---	---	-17%	---	---	-52%	---	---	-64%		
GBR-50	Jan-21	Bailer		<0.0010	---	---	0.012	---	---	<0.0010	---	---	<0.00050	---	---	0.035	---	---	2.5	---	---	0.0068	---	---
	Apr-21	Low Flow		<0.0010	<0.0010	---	0.0091	0.008	-13%	<0.0010	<0.0010	---	<0.00050	<0.00050	---	0.0023	0.0012	-63%	0.06	<0.020	-143%	<0.00050	<0.00050	---
	relative percent difference**			---	---	---	-27%	---	---	---	---	---	---	---	---	-175%	---	---	-191%	---	---	-186%		

Notes:
(1) - EPA Regional Screening Level for tap water using hazard quotient of 1.0 (non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (carcinogens)
(2) - "Background" Concentration Proposed in Lee Acres DRAFT Remedial Investigation Report Prepared for the US Bureau of Land Management (dated February 1992)
(3) - Regional Background Concentrations Established in Document Titled *Hydrogeology and Water Resources of San Juan Basin, New Mexico* , Stone et al., dated 1983
(4) - Contaminant Concentrations Established as the "Remedial Goals" or "Background" Concentrations for the Lee Acres Superfund Site. Based on the Lee Acres DRAFT Remedial Investigation Report and Record of Decision (dated May 2004).
(5) - Background Threshold Value Established for the Former Giant Bloomfield Refinery
(6) - well is screened withing the bedrock aquifer
* - relative percent difference of concentrations from total to dissolved, negative numbers indicate a decrease in concentrations, positive numbers indicate an increase in concentrations. Half of the reporting limit used if non-detect.
** - relative percent difference of concentrations from bailer sampling to low-flow sampling, negative numbers indicate a decrease in concentrations, positive numbers indicate an increase in concentrations. Half of the reporting limit used if non-detect.
--- - not tested
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
USEPA - United States Environmental Protection Agency
BOLD - bold and highlighted cells indicates concentration exceeds the greater of GBR background concentrations or NMWQCC standards; where NMWQCC standards are not established, concentrations compared to EPA regional screening levels

TABLE 9
GROUNDWATER ANALYTICAL RESULTS - BLM SPLIT SAMPLING OF UPGRADIENT WELLS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

Well ID	Sample Date	Sampling Method	Metals	total manganese	dissolved manganese	relative percent difference*	total nickel	dissolved nickel	relative percent difference*	total selenium	dissolved selenium	relative percent difference*	total silver	dissolved silver	relative percent difference*	total thallium	dissolved thallium	relative percent difference*	General Chemistry	chloride	fluoride	nitrate + nitrite as N	sulfate	dissolved organic carbon	total dissolved solids
Unit				mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---	mg/L	mg/L	---		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
NMWQCC Standard				0.2	0.2	---	0.2	0.2	---	0.05	0.05	---	0.05	0.05	---	0.002	0.002	---		250	1.6	NE	600	NE	1,000
EPA Regional Screening Level (1)				0.434	0.434	---	0.392	0.392	---	0.0998	0.0998	---	0.0941	0.0941	---	0.0002	0.0002	---		NE	0.799	NE	NE	NE	NE
Lee Acres Alluvial Aquifer Background Concentration (2)				0.0161 - 0.423	0.0161 - 0.423	---	nd	nd	---	0.008 - 0.0095	0.008 - 0.0095	---	0.0273 - 0.0309	0.0273 - 0.0309	---	NE	NE	---		6.4 - 404	NE	1.2 - 4.9	420 - 2,120	NE	760 - 3,600
Lee Acres Regional Background Concentration (3)				0 - 2.6	0 - 2.6	---	NE	NE	---	0.002 - 0.04	0.002 - 0.04	---	NE	NE	---	NE	NE	---		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE	NE
Lee Acres RI/ROD Remedial Goals (4)				0.346	0.346	---	0.20	0.20	---	0.010	0.010	---	0.05	0.05	---	NE	NE	---		34,000	NE	10	14,000	NE	10,000
GBR Background Concentrations (5)				5.28	5.28	---	NE	NE	---	NE	NE	---	NE	NE	---	NE	NE	---		560	NE	NE	2,800	NE	4,599
GBR-17	Jan-21	Bailer		0.014	---	---	0.0056	---	---	0.0030	---	---	<0.00050	---	---	<0.00025	---	---		52	0.57	5.5	1,300	---	2,220
	Apr-21	Low Flow		0.015	<0.0020	-175%	0.0014	<0.0010	-95%	0.0038	0.0032	-17%	<0.00050	<0.0050	---	<0.00025	<0.00050	---		59	0.33	7.1	1,300	<1.0	2,330
	relative percent difference**			7%	---	---	-120%	---	---	24%	---	---	---	---	---	---	---	---		---	---	---	---	---	---
GBR-32 (6)	Jan-21	Bailer		1.1	---	---	0.061	---	---	0.0044	---	---	<0.00050	---	---	<0.00025	---	---		170	0.37	<1.0	1,900	---	3,230
	Apr-21	Low Flow		2.0	1.4	-35%	0.059	0.034	-54%	0.0025	0.0014	-56%	<0.00050	<0.0050	---	<0.00025	<0.00050	---		160	<0.50	1.6	1,800	1.9	3,240
	relative percent difference**			58%	---	---	-3%	---	---	-55%	---	---	---	---	---	---	---	---		---	---	---	---	---	---
GBR-48	Jan-21	Bailer		0.67	---	---	0.068	---	---	0.02	---	---	<0.00050	---	---	0.00038	---	---		290	0.39	2.1	2,100	---	3,720
	Apr-21	Low Flow		0.38	<0.0020	-199%	0.058	0.041	-34%	0.015	0.012	-22%	<0.00050	<0.0050	---	<0.00025	<0.00050	---		290	<0.50	2.8	1,700	1.6	3,410
	relative percent difference**			-55%	---	---	-16%	---	---	-29%	---	---	---	---	---	-101%	---	---		---	---	---	---	---	---
GBR-50	Jan-21	Bailer		0.16	---	---	0.013	---	---	0.010	---	---	<0.00050	---	---	<0.00025	---	---		60	0.56	2.4	2,100	---	3,100
	Apr-21	Low Flow		0.018	0.0093	-64%	0.0014	<0.0010	-95%	0.011	0.011	---	<0.00050	<0.0050	---	<0.00025	<0.00050	---		69	0.2	8.9	1,800	<1.0	3,100
	relative percent difference**			-160%	---	---	-161%	---	---	10%	---	---	---	---	---	---	---	---		---	---	---	---	---	---

Notes:
(1) - EPA Regional Screening Level for tap water using hazard quotient of 1.0 (non-carcinogens) and cancer risk of 1 in 100,000 exposed persons (carcinogens)
(2) - "Background" Concentration Proposed in Lee Acres DRAFT Remedial Investigation Report Prepared for the US Bureau of Land Management (dated February 1992)
(3) - Regional Background Concentrations Established in Document Titled *Hydrogeology and Water Resources of San Juan Basin, New Mexico* , Stone et al., dated 1983
(4) - Contaminant Concentrations Established as the "Remedial Goals" or "Background" Concentrations for the Lee Acres Superfund Site. Based on the Lee Acres DRAFT Remedial Investigation Report and Record of Decision (dated May 2004).
(5) - Background Threshold Value Established for the Former Giant Bloomfield Refinery
(6) - well is screened withing the bedrock aquifer
* - relative percent difference of concentrations from total to dissolved, negative numbers indicate a decrease in concentrations, positive numbers indicate an increase in concentrations. Half of the reporting limit used if non-detect.
** - relative percent difference of concentrations from bailer sampling to low-flow sampling, negative numbers indicate a decrease in concentrations, positive numbers indicate an increase in concentrations. Half of the reporting limit used if non-detect.
--- - not tested
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
USEPA - United States Environmental Protection Agency
BOLD - bold and highlighted cells indicates concentration exceeds the greater of GBR background concentrations or NMWQCC standards; where NMWQCC standards are not established, concentrations compared to EPA regional screening levels

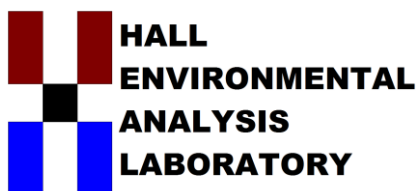
TABLE 10
BACKGROUND THRESHOLD VALUES STATISTICAL ANALYSIS AND RESULTS

FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING SOUTHWEST, LLC
SAN JUAN COUNTY, NEW MEXICO

												NDs replaced with PQL - Analyzed as Detections (per Agency's request)				Proposed Background Threshold Values (BTVs)	Comments
Analyte	Units	Number of Samples	Percent ND	Number of ND	Detections	ND EM	Distribution	Min	Max	Mean	Standard Deviation	CV	ND EM	Distribution	95%UTL 95% Coverage		
Chloride	mg/L	48	0	0	48	NA	Non-Parametric\Max	43	560	218.4	148					560	No Change. Dataset do not follow a discernible distribution, use Max value as UTL
Chromium	mg/L	40	2.5	1	39	ROS	Lognormal	0.0069	1.4	0.277	0.351	1.268	PQL	Gamma-WH	1.294	1.29	Calculated UTL based on lognormal distribution is disproportionately high when compared to maximum detection= 1.4 due to highly variable sample data, recommend using UTL based on Gamma distribution with WH approximation
Iron	mg/L	41	4.878	2	39	ROS	Lognormal	0.01	170	17.35	31.73	1.829	PQL	Gamma-HW	97.75	97.8	Calculated UTL based on lognormal distribution is disproportionately high when compared to maximum detection= 170 due to highly variable sample data, recommend using UTL based on Gamma distribution with HW approximation
Manganese	mg/L	32	0	0	32	NA	Lognormal	0.041	6.4	1.187	1.416					5.28	Calculated UTL based on lognormal distribution is disproportionately high when compared to maximum detection= 6.4 due to highly variable sample data, recommend using UTL based on Gamma distribution with HW approximation
Sulfate	mg/L	48	0	0	48	NA	Non-Parametric\Max	190	2,800	1,776	405.6					2,800	Dataset do not follow a discernible distribution, use Max value as UTL
Total Dissolved Solids	mg/L	48	0	0	48	NA	Normal	1,460	5,100	3,265	645.2					4,599	Low coefficient of variation, use UTL based on normal distribution

Notes:
CV - Coefficient of Variation
HW - Hawkins–Wixley approximation
KM - Kaplan-Meier method
NA - Not Applicable
ND - Non-detect
ND EM - Non-detect estimation method
ROS - Regression on order statistics
WH - Wilson-Hilferty approximation

APPENDIX A – SITE GROUNDWATER ANALYTICAL LABORATORY REPORTS



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

February 15, 2021

Gregory McCartney
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX: (505) 632-3911

RE: 2021 Giant Former Refinery

OrderNo.: 2102004

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 8 sample(s) on 1/30/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-50

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 11:38:00 AM

Lab ID: 2102004-001

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/3/2021 10:44:38 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/3/2021 10:44:38 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/3/2021 10:44:38 AM	57858
Lead	0.0068	0.00050		mg/L	1	2/3/2021 10:44:38 AM	57858
Nickel	0.013	0.0010		mg/L	1	2/3/2021 10:44:38 AM	57858
Selenium	0.010	0.0010		mg/L	1	2/3/2021 10:44:38 AM	57858
Silver	ND	0.00050		mg/L	1	2/3/2021 10:44:38 AM	57858
Thallium	ND	0.00025		mg/L	1	2/3/2021 10:44:38 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.56	0.10		mg/L	1	2/2/2021 11:51:36 AM	R75020
Chloride	60	10		mg/L	20	2/2/2021 12:04:28 PM	R75020
Sulfate	2100	25	*	mg/L	50	2/4/2021 12:07:38 PM	R75072
Nitrate+Nitrite as N	2.4	1.0		mg/L	5	2/2/2021 11:26:33 PM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3100	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.012	0.0030		mg/L	1	2/4/2021 8:35:12 AM	57858
Chromium	0.035	0.0060		mg/L	1	2/4/2021 8:35:12 AM	57858
Iron	2.5	0.25	*	mg/L	5	2/4/2021 8:41:54 AM	57858
Manganese	0.16	0.0020	*	mg/L	1	2/4/2021 8:35:12 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 12:55:11 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 6:02:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 6:02:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-50

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 11:38:00 AM

Lab ID: 2102004-001

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 6:02:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 6:02:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 6:02:00 AM	57841
Surr: Nitrobenzene-d5	75.5	26.3-112		%Rec	1	2/5/2021 6:02:00 AM	57841
Surr: 2-Fluorobiphenyl	55.5	21.1-110		%Rec	1	2/5/2021 6:02:00 AM	57841
Surr: 4-Terphenyl-d14	74.5	17.6-167		%Rec	1	2/5/2021 6:02:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Acetone	10	10		µg/L	1	2/8/2021 7:01:17 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 7:01:17 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 7:01:17 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-50

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 11:38:00 AM

Lab ID: 2102004-001

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 7:01:17 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 7:01:17 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 7:01:17 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 7:01:17 PM	A75144
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	2/8/2021 7:01:17 PM	A75144
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	2/8/2021 7:01:17 PM	A75144
Surr: Dibromofluoromethane	103	70-130		%Rec	1	2/8/2021 7:01:17 PM	A75144
Surr: Toluene-d8	95.5	70-130		%Rec	1	2/8/2021 7:01:17 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-48

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:06:00 PM

Lab ID: 2102004-002

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0050	0.0010		mg/L	1	2/3/2021 10:57:52 AM	57858
Beryllium	0.0020	0.0010		mg/L	1	2/3/2021 10:57:52 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/3/2021 10:57:52 AM	57858
Lead	0.016	0.00050	*	mg/L	1	2/3/2021 10:57:52 AM	57858
Nickel	0.068	0.0050		mg/L	5	2/4/2021 10:57:13 AM	57858
Selenium	0.020	0.0010		mg/L	1	2/3/2021 10:57:52 AM	57858
Silver	ND	0.00050		mg/L	1	2/3/2021 10:57:52 AM	57858
Thallium	0.00038	0.00025		mg/L	1	2/3/2021 10:57:52 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.39	0.10		mg/L	1	2/2/2021 12:17:20 PM	R75020
Chloride	290	10	*	mg/L	20	2/2/2021 12:30:12 PM	R75020
Sulfate	2100	25	*	mg/L	50	2/4/2021 12:19:59 PM	R75072
Nitrate+Nitrite as N	2.1	1.0		mg/L	5	2/2/2021 11:39:26 PM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3720	40.0	*D	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.20	0.0030		mg/L	1	2/4/2021 8:55:27 AM	57858
Chromium	0.050	0.0060		mg/L	1	2/4/2021 8:55:27 AM	57858
Iron	29	2.5	*	mg/L	50	2/4/2021 10:40:43 AM	57858
Manganese	0.67	0.0020	*	mg/L	1	2/4/2021 8:55:27 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 12:57:15 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 6:48:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 6:48:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-48

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:06:00 PM

Lab ID: 2102004-002

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 6:48:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 6:48:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 6:48:00 AM	57841
Surr: Nitrobenzene-d5	81.5	26.3-112		%Rec	1	2/5/2021 6:48:00 AM	57841
Surr: 2-Fluorobiphenyl	61.0	21.1-110		%Rec	1	2/5/2021 6:48:00 AM	57841
Surr: 4-Terphenyl-d14	87.0	17.6-167		%Rec	1	2/5/2021 6:48:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 7:30:01 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 7:30:01 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 7:30:01 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-48

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:06:00 PM

Lab ID: 2102004-002

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 7:30:01 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 7:30:01 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 7:30:01 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 7:30:01 PM	A75144
Surr: 1,2-Dichloroethane-d4	82.3	70-130		%Rec	1	2/8/2021 7:30:01 PM	A75144
Surr: 4-Bromofluorobenzene	95.7	70-130		%Rec	1	2/8/2021 7:30:01 PM	A75144
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/8/2021 7:30:01 PM	A75144
Surr: Toluene-d8	102	70-130		%Rec	1	2/8/2021 7:30:01 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-32

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:32:00 PM

Lab ID: 2102004-003

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0013	0.0010		mg/L	1	2/3/2021 10:59:59 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/3/2021 10:59:59 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/3/2021 10:59:59 AM	57858
Lead	0.0011	0.00050		mg/L	1	2/3/2021 10:59:59 AM	57858
Nickel	0.061	0.0050		mg/L	5	2/4/2021 10:59:19 AM	57858
Selenium	0.0044	0.0010		mg/L	1	2/3/2021 10:59:59 AM	57858
Silver	ND	0.00050		mg/L	1	2/3/2021 10:59:59 AM	57858
Thallium	ND	0.00025		mg/L	1	2/3/2021 10:59:59 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.37	0.10		mg/L	1	2/2/2021 12:43:04 PM	R75020
Chloride	170	10		mg/L	20	2/2/2021 12:55:56 PM	R75020
Sulfate	1900	25	*	mg/L	50	2/4/2021 12:32:20 PM	R75072
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/2/2021 11:52:18 PM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3230	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.028	0.0030		mg/L	1	2/4/2021 8:59:49 AM	57858
Chromium	0.33	0.0060	*	mg/L	1	2/4/2021 8:59:49 AM	57858
Iron	8.3	0.50	*	mg/L	10	2/4/2021 10:42:54 AM	57858
Manganese	1.1	0.010	*	mg/L	5	2/4/2021 9:02:01 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 12:59:19 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 7:35:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 7:35:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-32

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:32:00 PM

Lab ID: 2102004-003

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 7:35:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 7:35:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 7:35:00 AM	57841
Surr: Nitrobenzene-d5	88.0	26.3-112		%Rec	1	2/5/2021 7:35:00 AM	57841
Surr: 2-Fluorobiphenyl	70.0	21.1-110		%Rec	1	2/5/2021 7:35:00 AM	57841
Surr: 4-Terphenyl-d14	88.0	17.6-167		%Rec	1	2/5/2021 7:35:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 7:58:42 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 7:58:42 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 7:58:42 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-32

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:32:00 PM

Lab ID: 2102004-003

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 7:58:42 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 7:58:42 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 7:58:42 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 7:58:42 PM	A75144
Surr: 1,2-Dichloroethane-d4	84.4	70-130		%Rec	1	2/8/2021 7:58:42 PM	A75144
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	2/8/2021 7:58:42 PM	A75144
Surr: Dibromofluoromethane	100	70-130		%Rec	1	2/8/2021 7:58:42 PM	A75144
Surr: Toluene-d8	103	70-130		%Rec	1	2/8/2021 7:58:42 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-17

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:53:00 PM

Lab ID: 2102004-004

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/3/2021 11:02:05 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/3/2021 11:02:05 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/3/2021 11:02:05 AM	57858
Lead	0.00064	0.00050		mg/L	1	2/3/2021 11:02:05 AM	57858
Nickel	0.0056	0.0010		mg/L	1	2/3/2021 11:02:05 AM	57858
Selenium	0.0030	0.0010		mg/L	1	2/3/2021 11:02:05 AM	57858
Silver	ND	0.00050		mg/L	1	2/3/2021 11:02:05 AM	57858
Thallium	ND	0.00025		mg/L	1	2/3/2021 11:02:05 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.57	0.10		mg/L	1	2/2/2021 1:34:32 PM	R75020
Chloride	52	10		mg/L	20	2/2/2021 1:47:23 PM	R75020
Sulfate	1300	25	*	mg/L	50	2/4/2021 12:44:40 PM	R75072
Nitrate+Nitrite as N	5.5	1.0		mg/L	5	2/3/2021 12:05:10 AM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	2220	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.014	0.0030		mg/L	1	2/4/2021 9:04:08 AM	57858
Chromium	0.011	0.0060		mg/L	1	2/4/2021 9:04:08 AM	57858
Iron	0.79	0.050	*	mg/L	1	2/4/2021 9:04:08 AM	57858
Manganese	0.014	0.0020		mg/L	1	2/4/2021 9:04:08 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 1:01:23 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 8:21:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 8:21:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-17

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:53:00 PM

Lab ID: 2102004-004

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 8:21:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 8:21:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 8:21:00 AM	57841
Surr: Nitrobenzene-d5	85.0	26.3-112		%Rec	1	2/5/2021 8:21:00 AM	57841
Surr: 2-Fluorobiphenyl	69.0	21.1-110		%Rec	1	2/5/2021 8:21:00 AM	57841
Surr: 4-Terphenyl-d14	91.0	17.6-167		%Rec	1	2/5/2021 8:21:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-17

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 12:53:00 PM

Lab ID: 2102004-004

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 8:27:19 PM	A75144
Surr: 1,2-Dichloroethane-d4	81.6	70-130		%Rec	1	2/8/2021 8:27:19 PM	A75144
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	2/8/2021 8:27:19 PM	A75144
Surr: Dibromofluoromethane	98.9	70-130		%Rec	1	2/8/2021 8:27:19 PM	A75144
Surr: Toluene-d8	99.1	70-130		%Rec	1	2/8/2021 8:27:19 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-52

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:19:00 PM

Lab ID: 2102004-005

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:01:25 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:01:25 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:01:25 AM	57858
Lead	ND	0.00050		mg/L	1	2/4/2021 11:01:25 AM	57858
Nickel	ND	0.0010		mg/L	1	2/4/2021 11:01:25 AM	57858
Selenium	0.0052	0.0010		mg/L	1	2/4/2021 11:01:25 AM	57858
Silver	ND	0.00050		mg/L	1	2/4/2021 11:01:25 AM	57858
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:01:25 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.64	0.10		mg/L	1	2/2/2021 2:00:15 PM	R75020
Chloride	56	10		mg/L	20	2/2/2021 2:13:07 PM	R75020
Sulfate	1600	25	*	mg/L	50	2/4/2021 12:57:01 PM	R75072
Nitrate+Nitrite as N	7.9	1.0		mg/L	5	2/3/2021 12:18:01 AM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	2590	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.016	0.0030		mg/L	1	2/4/2021 9:08:40 AM	57858
Chromium	ND	0.0060		mg/L	1	2/4/2021 9:08:40 AM	57858
Iron	0.32	0.050	*	mg/L	1	2/4/2021 9:08:40 AM	57858
Manganese	0.0094	0.0020		mg/L	1	2/4/2021 9:08:40 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 1:03:28 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 9:08:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 9:08:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-52

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:19:00 PM

Lab ID: 2102004-005

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 9:08:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 9:08:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 9:08:00 AM	57841
Surr: Nitrobenzene-d5	83.0	26.3-112		%Rec	1	2/5/2021 9:08:00 AM	57841
Surr: 2-Fluorobiphenyl	67.0	21.1-110		%Rec	1	2/5/2021 9:08:00 AM	57841
Surr: 4-Terphenyl-d14	86.0	17.6-167		%Rec	1	2/5/2021 9:08:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-52

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:19:00 PM

Lab ID: 2102004-005

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 8:55:58 PM	A75144
Surr: 1,2-Dichloroethane-d4	84.1	70-130		%Rec	1	2/8/2021 8:55:58 PM	A75144
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	2/8/2021 8:55:58 PM	A75144
Surr: Dibromofluoromethane	100	70-130		%Rec	1	2/8/2021 8:55:58 PM	A75144
Surr: Toluene-d8	101	70-130		%Rec	1	2/8/2021 8:55:58 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-13

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:38:00 PM

Lab ID: 2102004-006

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0018	0.0010		mg/L	1	2/4/2021 11:03:30 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:03:30 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:03:30 AM	57858
Lead	ND	0.00050		mg/L	1	2/4/2021 11:03:30 AM	57858
Nickel	0.010	0.0010		mg/L	1	2/4/2021 11:03:30 AM	57858
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:03:30 AM	57858
Silver	ND	0.00050		mg/L	1	2/4/2021 11:03:30 AM	57858
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:03:30 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.65	0.50		mg/L	5	2/2/2021 2:25:59 PM	R75020
Chloride	330	10	*	mg/L	20	2/2/2021 2:38:53 PM	R75020
Sulfate	360	10	*	mg/L	20	2/2/2021 2:38:53 PM	R75020
Nitrate+Nitrite as N	1.6	1.0		mg/L	5	2/3/2021 12:30:53 AM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	1690	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.083	0.0030		mg/L	1	2/4/2021 9:13:08 AM	57858
Chromium	ND	0.0060		mg/L	1	2/4/2021 9:13:08 AM	57858
Iron	0.26	0.050		mg/L	1	2/4/2021 9:13:08 AM	57858
Manganese	3.7	0.010	*	mg/L	5	2/4/2021 9:22:39 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 1:05:26 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 9:55:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 9:55:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-13

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:38:00 PM

Lab ID: 2102004-006

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 9:55:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 9:55:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 9:55:00 AM	57841
Surr: Nitrobenzene-d5	97.0	26.3-112		%Rec	1	2/5/2021 9:55:00 AM	57841
Surr: 2-Fluorobiphenyl	74.0	21.1-110		%Rec	1	2/5/2021 9:55:00 AM	57841
Surr: 4-Terphenyl-d14	91.5	17.6-167		%Rec	1	2/5/2021 9:55:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 9:24:40 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 9:24:40 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 9:24:40 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-13

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:38:00 PM

Lab ID: 2102004-006

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 9:24:40 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 9:24:40 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 9:24:40 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 9:24:40 PM	A75144
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	2/8/2021 9:24:40 PM	A75144
Surr: 4-Bromofluorobenzene	94.5	70-130		%Rec	1	2/8/2021 9:24:40 PM	A75144
Surr: Dibromofluoromethane	99.2	70-130		%Rec	1	2/8/2021 9:24:40 PM	A75144
Surr: Toluene-d8	98.2	70-130		%Rec	1	2/8/2021 9:24:40 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-9

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:53:00 PM

Lab ID: 2102004-007

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:05:37 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:05:37 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:05:37 AM	57858
Lead	0.0032	0.00050		mg/L	1	2/4/2021 11:05:37 AM	57858
Nickel	0.011	0.0010		mg/L	1	2/4/2021 11:05:37 AM	57858
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:05:37 AM	57858
Silver	ND	0.00050		mg/L	1	2/4/2021 11:05:37 AM	57858
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:05:37 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.74	0.50		mg/L	5	2/2/2021 2:51:44 PM	R75020
Chloride	130	10		mg/L	20	2/2/2021 3:04:36 PM	R75020
Sulfate	26	2.5		mg/L	5	2/2/2021 2:51:44 PM	R75020
Nitrate+Nitrite as N	ND	1.0		mg/L	5	2/3/2021 12:43:46 AM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	1540	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.62	0.0030		mg/L	1	2/4/2021 9:24:57 AM	57858
Chromium	ND	0.0060		mg/L	1	2/4/2021 9:24:57 AM	57858
Iron	1.4	0.25	*	mg/L	5	2/4/2021 9:27:05 AM	57858
Manganese	0.22	0.0020	*	mg/L	1	2/4/2021 9:24:57 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 1:07:24 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
1-Methylnaphthalene	0.48	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
2-Methylnaphthalene	0.22	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Acenaphthene	1.3	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Fluorene	3.0	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Anthracene	0.40	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Fluoranthene	0.40	0.20		µg/L	1	2/5/2021 10:42:00 AM	57841
Pyrene	0.34	0.20		µg/L	1	2/5/2021 10:42:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-9

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:53:00 PM

Lab ID: 2102004-007

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 10:42:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 10:42:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 10:42:00 AM	57841
Surr: Nitrobenzene-d5	88.5	26.3-112		%Rec	1	2/5/2021 10:42:00 AM	57841
Surr: 2-Fluorobiphenyl	49.5	21.1-110		%Rec	1	2/5/2021 10:42:00 AM	57841
Surr: 4-Terphenyl-d14	71.5	17.6-167		%Rec	1	2/5/2021 10:42:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Ethylbenzene	5.1	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: SHS-9

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 1:53:00 PM

Lab ID: 2102004-007

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Isopropylbenzene	2.3	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
n-Propylbenzene	2.5	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 9:53:15 PM	A75144
Surr: 1,2-Dichloroethane-d4	90.1	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr: Toluene-d8	97.3	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-31

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 2:16:00 PM

Lab ID: 2102004-008

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:07:43 AM	57858
Lead	0.0015	0.00050		mg/L	1	2/4/2021 11:07:43 AM	57858
Nickel	0.0056	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858
Selenium	0.0063	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858
Silver	ND	0.00050		mg/L	1	2/4/2021 11:07:43 AM	57858
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:07:43 AM	57858
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.54	0.50		mg/L	5	2/2/2021 3:17:28 PM	R75020
Chloride	85	2.5		mg/L	5	2/2/2021 3:17:28 PM	R75020
Sulfate	1600	25	*	mg/L	50	2/4/2021 1:09:22 PM	R75072
Nitrate+Nitrite as N	7.1	1.0		mg/L	5	2/3/2021 12:56:38 AM	R75020
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	2770	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.057	0.0030		mg/L	1	2/4/2021 9:29:12 AM	57858
Chromium	ND	0.0060		mg/L	1	2/4/2021 9:29:12 AM	57858
Iron	2.1	0.25	*	mg/L	5	2/4/2021 9:31:23 AM	57858
Manganese	0.23	0.0020	*	mg/L	1	2/4/2021 9:29:12 AM	57858
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/5/2021 1:09:23 PM	57882
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
1-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Acenaphthene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Fluorene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Anthracene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Fluoranthene	ND	0.20		µg/L	1	2/5/2021 11:29:00 AM	57841
Pyrene	ND	0.20		µg/L	1	2/5/2021 11:29:00 AM	57841
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Chrysene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-31

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 2:16:00 PM

Lab ID: 2102004-008

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 11:29:00 AM	57841
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 11:29:00 AM	57841
Surr: Nitrobenzene-d5	101	26.3-112		%Rec	1	2/5/2021 11:29:00 AM	57841
Surr: 2-Fluorobiphenyl	59.5	21.1-110		%Rec	1	2/5/2021 11:29:00 AM	57841
Surr: 4-Terphenyl-d14	84.5	17.6-167		%Rec	1	2/5/2021 11:29:00 AM	57841
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Toluene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Ethylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Naphthalene	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
2-Methylnaphthalene	ND	4.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Acetone	ND	10		µg/L	1	2/8/2021 10:21:43 PM	A75144
Bromobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Bromodichloromethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Bromoform	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Bromomethane	ND	3.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
2-Butanone	ND	10		µg/L	1	2/8/2021 10:21:43 PM	A75144
Carbon disulfide	ND	10		µg/L	1	2/8/2021 10:21:43 PM	A75144
Carbon Tetrachloride	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Chlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Chloroethane	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Chloroform	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Chloromethane	ND	3.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
2-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
4-Chlorotoluene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
cis-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Dibromochloromethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Dibromomethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144

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

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

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Analytical Report

Lab Order 2102004

Date Reported: 2/15/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-31

Project: 2021 Giant Former Refinery

Collection Date: 1/29/2021 2:16:00 PM

Lab ID: 2102004-008

Matrix: AQUEOUS

Received Date: 1/30/2021 9:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1-Dichloroethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1-Dichloroethene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,3-Dichloropropane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
2,2-Dichloropropane	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Hexachlorobutadiene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
2-Hexanone	ND	10		µg/L	1	2/8/2021 10:21:43 PM	A75144
Isopropylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
4-Isopropyltoluene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
4-Methyl-2-pentanone	ND	10		µg/L	1	2/8/2021 10:21:43 PM	A75144
Methylene Chloride	ND	3.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
n-Butylbenzene	ND	3.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
n-Propylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
sec-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Styrene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
tert-Butylbenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
trans-1,2-DCE	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Trichlorofluoromethane	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Vinyl chloride	ND	1.0		µg/L	1	2/8/2021 10:21:43 PM	A75144
Xylenes, Total	ND	1.5		µg/L	1	2/8/2021 10:21:43 PM	A75144
Surr: 1,2-Dichloroethane-d4	83.5	70-130		%Rec	1	2/8/2021 10:21:43 PM	A75144
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	2/8/2021 10:21:43 PM	A75144
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	2/8/2021 10:21:43 PM	A75144
Surr: Toluene-d8	103	70-130		%Rec	1	2/8/2021 10:21:43 PM	A75144

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

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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: MB-57858	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 57858	RunNo: 75033								
Prep Date: 2/2/2021	Analysis Date: 2/3/2021	SeqNo: 2648557 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Chromium	ND	0.0060								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LLCS-57858	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 57858	RunNo: 75033								
Prep Date: 2/2/2021	Analysis Date: 2/3/2021	SeqNo: 2648559 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	103	50	150			
Chromium	0.0067	0.0060	0.006000	0	111	50	150			
Iron	ND	0.050	0.02000	0	110	50	150			
Manganese	ND	0.0020	0.002000	0	98.8	50	150			

Sample ID: LCS-57858	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 57858	RunNo: 75033								
Prep Date: 2/2/2021	Analysis Date: 2/3/2021	SeqNo: 2648561 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0030	0.5000	0	98.7	85	115			
Chromium	0.50	0.0060	0.5000	0	99.1	85	115			
Iron	0.54	0.050	0.5000	0	107	85	115			
Manganese	0.48	0.0020	0.5000	0	96.9	85	115			

Sample ID: 2102004-001DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-50	Batch ID: 57858	RunNo: 75073								
Prep Date: 2/2/2021	Analysis Date: 2/4/2021	SeqNo: 2650011 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0030	0.5000	0.01247	99.7	70	130			
Chromium	0.51	0.0060	0.5000	0.03514	94.3	70	130			
Manganese	0.65	0.0020	0.5000	0.1583	98.1	70	130			

Sample ID: 2102004-001DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-50	Batch ID: 57858	RunNo: 75073								
Prep Date: 2/2/2021	Analysis Date: 2/4/2021	SeqNo: 2650012 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.54	0.0030	0.5000	0.01247	106	70	130	5.98	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 2102004-001DMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals						
Client ID: GBR-50		Batch ID: 57858		RunNo: 75073						
Prep Date: 2/2/2021		Analysis Date: 2/4/2021		SeqNo: 2650012		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.54	0.0060	0.5000	0.03514	100	70	130	5.73	20	
Manganese	0.69	0.0020	0.5000	0.1583	106	70	130	6.16	20	

Sample ID: 2102004-001DMS		SampType: MS		TestCode: EPA Method 200.7: Metals						
Client ID: GBR-50		Batch ID: 57858		RunNo: 75073						
Prep Date: 2/2/2021		Analysis Date: 2/4/2021		SeqNo: 2650014		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.9	0.25	0.5000	2.493	83.4	70	130			

Sample ID: 2102004-001DMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals						
Client ID: GBR-50		Batch ID: 57858		RunNo: 75073						
Prep Date: 2/2/2021		Analysis Date: 2/4/2021		SeqNo: 2650018		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.9	0.25	0.5000	2.493	73.5	70	130	1.72	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57858		SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID: PBW		Batch ID: 57858			RunNo: 75032					
Prep Date: 2/2/2021		Analysis Date: 2/3/2021			SeqNo: 2648496		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-57858		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 57858		RunNo: 75032						
Prep Date: 2/2/2021		Analysis Date: 2/3/2021		SeqNo: 2648497			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	93.1	50	150			
Beryllium	0.0010	0.0010	0.001000	0	101	50	150			
Cadmium	0.00051	0.00050	0.0005000	0	101	50	150			
Lead	ND	0.00050	0.0005000	0	96.8	50	150			
Nickel	ND	0.0010	0.001000	0	89.9	50	150			
Selenium	ND	0.0010	0.001000	0	93.0	50	150			
Silver	ND	0.00050	0.0005000	0	85.9	50	150			

Sample ID: MSLCS-57858		SampType: LCS			TestCode: EPA 200.8: Metals					
Client ID: LCSW		Batch ID: 57858			RunNo: 75032					
Prep Date: 2/2/2021		Analysis Date: 2/3/2021			SeqNo: 2648498		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	95.2	85	115			
Beryllium	0.025	0.0010	0.02500	0	98.6	85	115			
Cadmium	0.012	0.00050	0.01250	0	99.1	85	115			
Lead	0.012	0.00050	0.01250	0	96.0	85	115			
Nickel	0.024	0.0010	0.02500	0	96.8	85	115			
Selenium	0.025	0.0010	0.02500	0	98.7	85	115			
Silver	0.012	0.00050	0.01250	0	99.3	85	115			
Thallium	0.012	0.00025	0.01250	0	96.3	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MSLLCS-TL-57858		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 57858		RunNo: 75032						
Prep Date: 2/2/2021		Analysis Date: 2/3/2021		SeqNo: 2648499		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	ND	0.00025	0.0002500	0	98.8	50	150			

Qualifiers:

- *

Value exceeds Maximum Contaminant Level.
- D

Sample Diluted Due to Matrix
- H

Holding times for preparation or analysis exceeded
- ND

Not Detected at the Reporting Limit
- PQL

Practical Quantitative Limit
- S

% Recovery outside of range due to dilution or matrix
- B

Analyte detected in the associated Method Blank
- E

Value above quantitation range
- J

Analyte detected below quantitation limits
- P

Sample pH Not In Range
- RL

Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57882	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 57882	RunNo: 75108								
Prep Date: 2/3/2021	Analysis Date: 2/5/2021	SeqNo: 2651426 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LL LCS-57882	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 57882	RunNo: 75108								
Prep Date: 2/3/2021	Analysis Date: 2/5/2021	SeqNo: 2651427 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	79.1	50	150			

Sample ID: LCS-57882	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 57882	RunNo: 75108								
Prep Date: 2/3/2021	Analysis Date: 2/5/2021	SeqNo: 2651428 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.0	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75020	RunNo: 75020								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648214 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75020	RunNo: 75020								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648215 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	101	90	110			
Chloride	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.6	0.50	10.00	0	96.4	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	97.7	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75072	RunNo: 75072								
Prep Date:	Analysis Date: 2/4/2021	SeqNo: 2650544 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75072	RunNo: 75072								
Prep Date:	Analysis Date: 2/4/2021	SeqNo: 2650545 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.2	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: A75144			RunNo: 75144						
Prep Date:	Analysis Date: 2/8/2021			SeqNo: 2653046		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Chlorobenzene	19	1.0	20.00	0	96.5	70	130			
1,1-Dichloroethene	18	1.0	20.00	0	89.6	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.7	70	130			
Surr: 1,2-Dichloroethane-d4	8.2		10.00		82.0	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	9.1		10.00		91.5	70	130			
Surr: Toluene-d8	9.5		10.00		95.0	70	130			

Sample ID: vsb fridge	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A75144			RunNo: 75144						
Prep Date:	Analysis Date: 2/8/2021			SeqNo: 2653047		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 31 of 37

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: vsb fridge	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A75144			RunNo: 75144						
Prep Date:	Analysis Date: 2/8/2021			SeqNo: 2653047		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: vsb fridge		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW		Batch ID: A75144		RunNo: 75144						
Prep Date:		Analysis Date: 2/8/2021		SeqNo: 2653047		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.4		10.00		83.9	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.4	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.3	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb-57859	SampType: MBLK			TestCode: EPA Method 8270SIM						
Client ID: PBW	Batch ID: 57859			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/4/2021			SeqNo: 2651788			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	3.1		4.000		78.5	26.3	112			
Surr: 2,4,6-Tribromophenol	4.1		8.000		51.8	27.7	118			
Surr: 2-Fluorobiphenyl	2.2		4.000		54.5	21.1	110			
Surr: 4-Terphenyl-d14	3.2		4.000		80.0	17.6	167			

Sample ID: lcs-57859	SampType: LCS			TestCode: EPA Method 8270SIM						
Client ID: LCSW	Batch ID: 57859			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/4/2021			SeqNo: 2651789			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	4.6		5.000		92.8	26.3	112			
Surr: 2,4,6-Tribromophenol	6.1		10.00		60.8	27.7	118			
Surr: 2-Fluorobiphenyl	3.3		5.000		66.0	21.1	110			
Surr: 4-Terphenyl-d14	5.3		5.000		107	17.6	167			

Sample ID: lcsd-57859	SampType: LCSD			TestCode: EPA Method 8270SIM						
Client ID: LCSS02	Batch ID: 57859			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/4/2021			SeqNo: 2651790			Units: %Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Nitrobenzene-d5	5.5		5.000		111	26.3	112	0	0	
Surr: 2,4,6-Tribromophenol	7.1		10.00		70.6	27.7	118	0	0	
Surr: 2-Fluorobiphenyl	3.8		5.000		76.8	21.1	110	0	0	
Surr: 4-Terphenyl-d14	4.7		5.000		94.8	17.6	167	0	0	

Sample ID: mb-57841	SampType: MBLK			TestCode: EPA Method 8270SIM						
Client ID: PBW	Batch ID: 57841			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/5/2021			SeqNo: 2651799			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.10								
2-Methylnaphthalene	ND	0.10								
Acenaphthylene	ND	0.10								
Acenaphthene	ND	0.10								
Fluorene	ND	0.10								
Phenanthrene	ND	0.10								
Anthracene	ND	0.10								
Fluoranthene	ND	0.20								
Pyrene	ND	0.20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb-57841	SampType: MBLK	TestCode: EPA Method 8270SIM								
Client ID: PBW	Batch ID: 57841	RunNo: 75123								
Prep Date: 2/2/2021	Analysis Date: 2/5/2021	SeqNo: 2651799 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benz(a)anthracene	ND	0.10								
Chrysene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.30								
Surr: Nitrobenzene-d5	2.9		4.000		72.5	26.3	112			
Surr: 2,4,6-Tribromophenol	0		8.000		0	27.7	118			S
Surr: 2-Fluorobiphenyl	2.1		4.000		51.5	21.1	110			
Surr: 4-Terphenyl-d14	2.1		4.000		52.5	17.6	167			

Sample ID: lcs-57841	SampType: LCS	TestCode: EPA Method 8270SIM								
Client ID: LCSW	Batch ID: 57841	RunNo: 75123								
Prep Date: 2/2/2021	Analysis Date: 2/5/2021	SeqNo: 2651800 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.3	0.10	2.000	0	67.0	18.5	83.4			
1-Methylnaphthalene	1.3	0.10	2.000	0	67.0	15.1	89.6			
2-Methylnaphthalene	1.3	0.10	2.000	0	67.0	15	90.6			
Acenaphthylene	1.4	0.10	2.000	0	70.0	18.2	95.3			
Acenaphthene	1.3	0.10	2.000	0	67.0	23.9	90.3			
Fluorene	1.3	0.10	2.000	0	67.0	16.8	106			
Phenanthrene	1.4	0.10	2.000	0	71.0	23.3	105			
Anthracene	1.4	0.10	2.000	0	70.0	15	112			
Fluoranthene	1.7	0.20	2.000	0	85.0	15.4	138			
Pyrene	1.3	0.20	2.000	0	64.0	15	128			
Benz(a)anthracene	2.3	0.10	2.000	0	114	38.7	111			S
Chrysene	1.5	0.10	2.000	0	74.0	32.6	96.6			
Benzo(b+k)fluoranthene	3.7	0.20	4.000	0	91.5	18.3	114			
Benzo(a)pyrene	2.1	0.070	2.000	0	104	24.5	123			
Dibenz(a,h)anthracene	1.9	0.10	2.000	0	93.0	17.8	118			
Benzo(g,h,i)perylene	1.7	0.10	2.000	0	86.0	22.2	110			
Indeno(1,2,3-cd)pyrene	3.4	0.30	2.000	0	171	20.8	115			S
Surr: Nitrobenzene-d5	5.4		5.000		108	26.3	112			
Surr: 2,4,6-Tribromophenol	0		10.00		0	27.7	118			S
Surr: 2-Fluorobiphenyl	3.8		5.000		75.2	21.1	110			
Surr: 4-Terphenyl-d14	4.1		5.000		81.6	17.6	167			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: Icsd-57841	SampType: LCSD				TestCode: EPA Method 8270SIM					
Client ID: LCSS02	Batch ID: 57841				RunNo: 75123					
Prep Date: 2/2/2021	Analysis Date: 2/5/2021				SeqNo: 2651801	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.3	0.10	2.000	0	63.0	18.5	83.4	6.15	20	
1-Methylnaphthalene	1.3	0.10	2.000	0	64.0	15.1	89.6	4.58	20	
2-Methylnaphthalene	1.3	0.10	2.000	0	64.0	15	90.6	4.58	20	
Acenaphthylene	1.4	0.10	2.000	0	69.0	18.2	95.3	1.44	20	
Acenaphthene	1.3	0.10	2.000	0	63.0	23.9	90.3	6.15	20	
Fluorene	1.3	0.10	2.000	0	65.0	16.8	106	3.03	20	
Phenanthrene	1.3	0.10	2.000	0	67.0	23.3	105	5.80	20	
Anthracene	1.4	0.10	2.000	0	70.0	15	112	0	20	
Fluoranthene	1.7	0.20	2.000	0	85.0	15.4	138	0	20	
Pyrene	1.4	0.20	2.000	0	72.0	15	128	11.8	20	
Benz(a)anthracene	1.8	0.10	2.000	0	88.0	38.7	111	25.7	20	R
Chrysene	1.5	0.10	2.000	0	77.0	32.6	96.6	3.97	20	
Benzo(b+k)fluoranthene	3.1	0.20	4.000	0	77.0	18.3	114	17.2	0	
Benzo(a)pyrene	1.6	0.070	2.000	0	79.0	24.5	123	27.3	20	R
Dibenz(a,h)anthracene	1.7	0.10	2.000	0	83.0	17.8	118	11.4	20	
Benzo(g,h,i)perylene	1.6	0.10	2.000	0	82.0	22.2	110	4.76	20	
Indeno(1,2,3-cd)pyrene	2.9	0.30	2.000	0	145	20.8	115	16.5	20	S
Surr: Nitrobenzene-d5	5.1		5.000		102	26.3	112	0	0	
Surr: 2,4,6-Tribromophenol	0		10.00		0	27.7	118	0	0	S
Surr: 2-Fluorobiphenyl	3.4		5.000		68.8	21.1	110	0	0	
Surr: 4-Terphenyl-d14	5.0		5.000		100	17.6	167	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102004

15-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MB-57847	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 57847	RunNo: 75038								
Prep Date: 2/2/2021	Analysis Date: 2/3/2021	SeqNo: 2648794		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-57847	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 57847	RunNo: 75038								
Prep Date: 2/2/2021	Analysis Date: 2/3/2021	SeqNo: 2648795		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

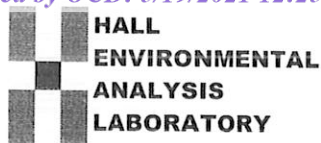
E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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

Sample Log-In Check List

Client Name: **Western Refining
Southwest, Inc.**

Work Order Number: **2102004**

RcptNo: 1

Received By: **Juan Rojas**

1/30/2021 9:15:00 AM

Juan Rojas

Completed By: **Desiree Dominguez**

2/1/2021 9:22:58 AM

Desiree Dominguez

Reviewed By: **JR 2/1/21**

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
see 2/1/21
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☒ No ☐ NA ☐
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: 16
(<2 or >12 unless noted)

Adjusted? yes

Checked by: cec 2/1/21

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks: adduct ~ 0.5ml to 0070 for Ph <2 on 2/1/21

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			
2	1.3	Good	Yes			
3	1.6	Good	Yes			

**Recommended Analyte List for GBR Site-
Wide Sampling Event****VOCs Method 8260**

benzene
toluene
ethylbenzene
methyl tert-butyl ether (MTBE)
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
1,2-dichloroethane (EDC)
1,2-dibromoethane (EDB)
naphthalene
1-methylnaphthalene
2-methylnaphthalene
acetone
bromobenzene
bromodichloromethane
bromoform
bromomethane
2-butanone
carbon disulfide
carbon tetrachloride
chlorobenzene
chloroethane
chloroform
chloromethane
2-chlorotoluene
4-chlorotoluene
cis-1,2-dichloroethene (cis-1,2-DCE)
cis-1,3-dichloropropene
1,2-dibromo-3-chloropropane
dibromochloromethane
dibromomethane
1,2-dichlorobenzene
1,3-dichlorobenzene
1,4-dichlorobenzene
dichlorodifluoromethane
1,1-dichloroethane
1,1-dichloroethene (1,1-DCE)
1,2-dichloropropane
1,3-dichloropropane
2,2-dichloropropane
1,1-dichloropropene
hexachlorobutadiene
2-hexanone
isopropylbenzene

4-isopropyltoluene
4-methyl-2-pentanone
methylene chloride
n-butylbenzene
n-propylbenzene
sec-butylbenzene
styrene
tert-butylbenzene
1,1,1,2-tetrachloroethane
1,1,2,2-tetrachloroethane
tetrachloroethene (PCE)
trans-1,2-dichloroethene (trans-1,2-DCE)
trans-1,3-dichloropropene
1,2,3-trichlorobenzene
1,2,4-trichlorobenzene
1,1,1-trichloroethane
1,1,2-trichloroethane
trichloroethene (TCE)
trichlorofluoromethane
1,2,3-trichloropropane
vinyl chloride
xylenes, total

PAHs Method 8270

naphthalene
1-methylnaphthalene
2-methylnaphthalene
acenaphthylene
acenaphthene
fluorene
phenanthrene
anthracene
fluoranthene
pyrene
benz(a)anthracene
chrysene
benzo(b)fluoranthene
benzo(k)fluoranthene
benzo(a)pyrene
dibenz(a,h)anthracene
benzo(g,h,i)perylene
indeno(1,2,3-cd)pyrene

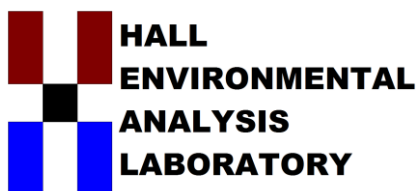
Anions Method 300.0

chloride
sulfate
fluoride
nitrate + nitrite as N

Metals Method 200.7

barium*
beryllium
cadmium*
chromium*
iron
manganese
nickel
silver*
Metals Method 200.8
arsenic*
lead*
selenium*
thallium
Mercury
Mercury*
Total Dissolved Solids Method M2540C
total dissolved solids

* - asterisks denotes RCRA 8 Metal



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

February 12, 2021

Gregory J. McCartney
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX: (505) 632-3911

RE: 2021 Giant Former Refinery

OrderNo.: 2102074

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 2/2/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-24D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:30:00 AM

Lab ID: 2102074-001

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:30:52 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:30:52 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:30:52 AM	57890
Lead	0.0010	0.00050		mg/L	1	2/4/2021 11:30:52 AM	57890
Nickel	0.0037	0.0010		mg/L	1	2/4/2021 11:30:52 AM	57890
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:30:52 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:30:52 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:30:52 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.52	0.50		mg/L	5	2/3/2021 6:31:24 PM	R75057
Chloride	200	25		mg/L	50	2/3/2021 6:44:16 PM	R75057
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	2/2/2021 12:21:37 PM	R75022
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	2/2/2021 12:21:37 PM	R75022
Sulfate	2100	25	*	mg/L	50	2/3/2021 6:44:16 PM	R75057
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3360	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.016	0.0030		mg/L	1	2/4/2021 9:33:31 AM	57889
Chromium	ND	0.0060		mg/L	1	2/4/2021 9:33:31 AM	57889
Iron	0.46	0.050	*	mg/L	1	2/4/2021 9:33:31 AM	57889
Manganese	0.92	0.0020	*	mg/L	1	2/4/2021 9:33:31 AM	57889
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:12:56 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
1-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
2-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Acenaphthene	0.18	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Fluorene	0.28	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Phenanthrene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Anthracene	0.28	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Fluoranthene	0.36	0.20		µg/L	1	2/4/2021 9:09:00 PM	57859
Pyrene	0.22	0.20		µg/L	1	2/4/2021 9:09:00 PM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Chrysene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-24D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:30:00 AM

Lab ID: 2102074-001

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/4/2021 9:09:00 PM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/4/2021 9:09:00 PM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/4/2021 9:09:00 PM	57859
Surr: Nitrobenzene-d5	69.5	26.3-112		%Rec	1	2/4/2021 9:09:00 PM	57859
Surr: 2-Fluorobiphenyl	52.0	21.1-110		%Rec	1	2/4/2021 9:09:00 PM	57859
Surr: 4-Terphenyl-d14	83.0	17.6-167		%Rec	1	2/4/2021 9:09:00 PM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Ethylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2-Dichloroethane (EDC)	1.3	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Acetone	ND	10		µg/L	1	2/9/2021 6:30:36 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 6:30:36 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 6:30:36 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-24D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:30:00 AM

Lab ID: 2102074-001

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 6:30:36 PM	C75172
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 6:30:36 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 6:30:36 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 6:30:36 PM	C75172
Surr: 1,2-Dichloroethane-d4	82.0	70-130		%Rec	1	2/9/2021 6:30:36 PM	C75172
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	2/9/2021 6:30:36 PM	C75172
Surr: Dibromofluoromethane	88.2	70-130		%Rec	1	2/9/2021 6:30:36 PM	C75172
Surr: Toluene-d8	94.4	70-130		%Rec	1	2/9/2021 6:30:36 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-30

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:50:00 AM

Lab ID: 2102074-002

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0051	0.0010		mg/L	1	2/4/2021 11:32:58 AM	57890
Beryllium	0.0010	0.0010		mg/L	1	2/4/2021 11:32:58 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:32:58 AM	57890
Lead	0.015	0.00050		mg/L	1	2/4/2021 11:32:58 AM	57890
Nickel	0.027	0.0010		mg/L	1	2/4/2021 11:32:58 AM	57890
Selenium	0.013	0.0010		mg/L	1	2/4/2021 11:32:58 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:32:58 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:32:58 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.42	0.10		mg/L	1	2/3/2021 7:23:34 PM	R75057
Chloride	220	25		mg/L	50	2/3/2021 7:35:55 PM	R75057
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/2/2021 1:11:16 PM	R75022
Nitrogen, Nitrate (As N)	0.95	0.50		mg/L	5	2/2/2021 1:11:16 PM	R75022
Sulfate	1900	25	*	mg/L	50	2/3/2021 7:35:55 PM	R75057
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3150	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.33	0.0030		mg/L	1	2/4/2021 9:38:03 AM	57890
Chromium	0.014	0.0060		mg/L	1	2/4/2021 9:38:03 AM	57890
Iron	23	2.5	*	mg/L	50	2/4/2021 11:03:05 AM	57890
Manganese	0.75	0.0020	*	mg/L	1	2/4/2021 9:38:03 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:15:00 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
1-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
2-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Acenaphthene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Fluorene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Phenanthrene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Anthracene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Fluoranthene	ND	0.20		µg/L	1	2/4/2021 9:56:00 PM	57859
Pyrene	ND	0.20		µg/L	1	2/4/2021 9:56:00 PM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Chrysene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-30

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:50:00 AM

Lab ID: 2102074-002

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/4/2021 9:56:00 PM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/4/2021 9:56:00 PM	57859
Surr: Nitrobenzene-d5	78.0	26.3-112		%Rec	1	2/4/2021 9:56:00 PM	57859
Surr: 2-Fluorobiphenyl	59.5	21.1-110		%Rec	1	2/4/2021 9:56:00 PM	57859
Surr: 4-Terphenyl-d14	83.5	17.6-167		%Rec	1	2/4/2021 9:56:00 PM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Ethylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Acetone	ND	10		µg/L	1	2/9/2021 7:56:43 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 7:56:43 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 7:56:43 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-30

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 10:50:00 AM

Lab ID: 2102074-002

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 7:56:43 PM	C75172
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 7:56:43 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 7:56:43 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 7:56:43 PM	C75172
Surr: 1,2-Dichloroethane-d4	80.0	70-130		%Rec	1	2/9/2021 7:56:43 PM	C75172
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	2/9/2021 7:56:43 PM	C75172
Surr: Dibromofluoromethane	91.5	70-130		%Rec	1	2/9/2021 7:56:43 PM	C75172
Surr: Toluene-d8	100	70-130		%Rec	1	2/9/2021 7:56:43 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-39

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:00:00 AM

Lab ID: 2102074-003

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:35:04 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:35:04 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:35:04 AM	57890
Lead	0.0022	0.00050		mg/L	1	2/4/2021 11:35:04 AM	57890
Nickel	0.030	0.0010		mg/L	1	2/4/2021 11:35:04 AM	57890
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:35:04 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:35:04 AM	57890
Thallium	0.00045	0.00025		mg/L	1	2/4/2021 11:35:04 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.54	0.50		mg/L	5	2/3/2021 9:28:17 AM	R75059
Chloride	160	10		mg/L	20	2/3/2021 9:41:10 AM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 9:28:17 AM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 9:28:17 AM	R75059
Sulfate	1000	25	*	mg/L	50	2/4/2021 9:58:53 PM	R75078
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	1860	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.091	0.0030		mg/L	1	2/4/2021 9:42:24 AM	57890
Chromium	0.043	0.0060		mg/L	1	2/4/2021 9:42:24 AM	57890
Iron	6.9	0.50	*	mg/L	10	2/4/2021 11:05:12 AM	57890
Manganese	0.19	0.0020	*	mg/L	1	2/4/2021 9:42:24 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:17:05 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
1-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
2-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Acenaphthene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Fluorene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Phenanthrene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Anthracene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Fluoranthene	ND	0.20		µg/L	1	2/4/2021 10:43:00 PM	57859
Pyrene	ND	0.20		µg/L	1	2/4/2021 10:43:00 PM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Chrysene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-39

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:00:00 AM

Lab ID: 2102074-003

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/4/2021 10:43:00 PM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/4/2021 10:43:00 PM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/4/2021 10:43:00 PM	57859
Surr: Nitrobenzene-d5	68.0	26.3-112		%Rec	1	2/4/2021 10:43:00 PM	57859
Surr: 2-Fluorobiphenyl	53.0	21.1-110		%Rec	1	2/4/2021 10:43:00 PM	57859
Surr: 4-Terphenyl-d14	95.5	17.6-167		%Rec	1	2/4/2021 10:43:00 PM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Ethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2-Dichloroethane (EDC)	1.2	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Acetone	ND	10		µg/L	1	2/9/2021 8:25:17 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 8:25:17 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 8:25:17 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-39

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:00:00 AM

Lab ID: 2102074-003

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 8:25:17 PM	C75172
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 8:25:17 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 8:25:17 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 8:25:17 PM	C75172
Surr: 1,2-Dichloroethane-d4	81.6	70-130		%Rec	1	2/9/2021 8:25:17 PM	C75172
Surr: 4-Bromofluorobenzene	97.1	70-130		%Rec	1	2/9/2021 8:25:17 PM	C75172
Surr: Dibromofluoromethane	92.9	70-130		%Rec	1	2/9/2021 8:25:17 PM	C75172
Surr: Toluene-d8	95.3	70-130		%Rec	1	2/9/2021 8:25:17 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-15

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:15:00 AM

Lab ID: 2102074-004

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:37:10 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:37:10 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:37:10 AM	57890
Lead	0.00067	0.00050		mg/L	1	2/4/2021 11:37:10 AM	57890
Nickel	0.0030	0.0010		mg/L	1	2/4/2021 11:37:10 AM	57890
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:37:10 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:37:10 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:37:10 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.94	0.10		mg/L	1	2/3/2021 9:54:02 AM	R75059
Chloride	92	10		mg/L	20	2/3/2021 10:06:54 AM	R75059
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	2/3/2021 9:54:02 AM	R75059
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	2/3/2021 9:54:02 AM	R75059
Sulfate	2000	50	*	mg/L	100	2/4/2021 10:11:46 PM	R75078
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3460	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.014	0.0030		mg/L	1	2/4/2021 9:53:51 AM	57890
Chromium	ND	0.0060		mg/L	1	2/4/2021 10:52:37 AM	57890
Iron	0.59	0.050	*	mg/L	1	2/4/2021 9:53:51 AM	57890
Manganese	0.48	0.0020	*	mg/L	1	2/4/2021 9:53:51 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:19:09 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
1-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
2-Methylnaphthalene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Acenaphthene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Fluorene	0.26	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Phenanthrene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Anthracene	0.30	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Fluoranthene	ND	0.20		µg/L	1	2/4/2021 11:31:00 PM	57859
Pyrene	0.22	0.20		µg/L	1	2/4/2021 11:31:00 PM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Chrysene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-15

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:15:00 AM

Lab ID: 2102074-004

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/4/2021 11:31:00 PM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/4/2021 11:31:00 PM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/4/2021 11:31:00 PM	57859
Surr: Nitrobenzene-d5	76.0	26.3-112		%Rec	1	2/4/2021 11:31:00 PM	57859
Surr: 2-Fluorobiphenyl	59.0	21.1-110		%Rec	1	2/4/2021 11:31:00 PM	57859
Surr: 4-Terphenyl-d14	93.0	17.6-167		%Rec	1	2/4/2021 11:31:00 PM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Ethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Acetone	ND	10		µg/L	1	2/9/2021 8:53:50 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 8:53:50 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 8:53:50 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-15

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:15:00 AM

Lab ID: 2102074-004

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 8:53:50 PM	C75172
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 8:53:50 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 8:53:50 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 8:53:50 PM	C75172
Surr: 1,2-Dichloroethane-d4	83.3	70-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: Dibromofluoromethane	94.4	70-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: Toluene-d8	98.4	70-130		%Rec	1	2/9/2021 8:53:50 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-21D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:40:00 AM

Lab ID: 2102074-005

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/4/2021 11:39:17 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:39:17 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:39:17 AM	57890
Lead	0.0022	0.00050		mg/L	1	2/4/2021 11:39:17 AM	57890
Nickel	0.014	0.0010		mg/L	1	2/4/2021 11:39:17 AM	57890
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:39:17 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:39:17 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:39:17 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.66	0.50		mg/L	5	2/3/2021 10:19:47 AM	R75059
Chloride	310	10	*	mg/L	20	2/3/2021 10:32:40 AM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 10:19:47 AM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 10:19:47 AM	R75059
Sulfate	780	10	*	mg/L	20	2/3/2021 10:32:40 AM	R75059
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	2220	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.27	0.0030		mg/L	1	2/4/2021 9:58:22 AM	57890
Chromium	ND	0.0060		mg/L	1	2/4/2021 10:54:44 AM	57890
Iron	0.97	0.050	*	mg/L	1	2/4/2021 9:58:22 AM	57890
Manganese	0.33	0.0020	*	mg/L	1	2/4/2021 9:58:22 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:25:41 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
1-Methylnaphthalene	0.34	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
2-Methylnaphthalene	0.22	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Acenaphthene	5.0	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Fluorene	9.0	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Phenanthrene	0.26	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Anthracene	1.0	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Fluoranthene	0.56	0.20		µg/L	1	2/5/2021 12:18:00 AM	57859
Pyrene	0.84	0.20		µg/L	1	2/5/2021 12:18:00 AM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Chrysene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-21D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:40:00 AM

Lab ID: 2102074-005

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 12:18:00 AM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 12:18:00 AM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 12:18:00 AM	57859
Surr: Nitrobenzene-d5	6.50	26.3-112	S	%Rec	1	2/5/2021 12:18:00 AM	57859
Surr: 2-Fluorobiphenyl	56.5	21.1-110		%Rec	1	2/5/2021 12:18:00 AM	57859
Surr: 4-Terphenyl-d14	83.5	17.6-167		%Rec	1	2/5/2021 12:18:00 AM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Ethylbenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Acetone	ND	10		µg/L	1	2/9/2021 9:22:26 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 9:22:26 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 9:22:26 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-21D

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 11:40:00 AM

Lab ID: 2102074-005

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 9:22:26 PM	C75172
Isopropylbenzene	1.3	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 9:22:26 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
sec-Butylbenzene	1.6	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 9:22:26 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 9:22:26 PM	C75172
Surr: 1,2-Dichloroethane-d4	80.0	70-130		%Rec	1	2/9/2021 9:22:26 PM	C75172
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	2/9/2021 9:22:26 PM	C75172
Surr: Dibromofluoromethane	94.1	70-130		%Rec	1	2/9/2021 9:22:26 PM	C75172
Surr: Toluene-d8	93.1	70-130		%Rec	1	2/9/2021 9:22:26 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-25

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:12:00 PM

Lab ID: 2102074-006

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.014	0.0010	*	mg/L	1	2/4/2021 11:41:23 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:41:23 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:41:23 AM	57890
Lead	0.028	0.0025	*	mg/L	5	2/4/2021 12:13:01 PM	57890
Nickel	0.0075	0.0010		mg/L	1	2/4/2021 11:41:23 AM	57890
Selenium	0.0031	0.0010		mg/L	1	2/4/2021 11:41:23 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:41:23 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:41:23 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.77	0.50		mg/L	5	2/3/2021 11:29:30 AM	R75059
Chloride	390	25	*	mg/L	50	2/4/2021 10:24:38 PM	R75078
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 11:29:30 AM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 11:29:30 AM	R75059
Sulfate	660	10	*	mg/L	20	2/3/2021 11:42:23 AM	R75059
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	2480	200	*D	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.48	0.0030		mg/L	1	2/4/2021 10:02:53 AM	57890
Chromium	ND	0.0060		mg/L	1	2/4/2021 10:56:56 AM	57890
Iron	26	2.5	*	mg/L	50	2/4/2021 11:07:30 AM	57890
Manganese	2.7	0.010	*	mg/L	5	2/4/2021 10:05:04 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:27:40 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
1-Methylnaphthalene	1.2	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
2-Methylnaphthalene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Acenaphthene	1.2	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Fluorene	2.0	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Phenanthrene	0.66	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Anthracene	0.64	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Fluoranthene	0.52	0.20		µg/L	1	2/5/2021 1:05:00 AM	57859
Pyrene	0.90	0.20		µg/L	1	2/5/2021 1:05:00 AM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Chrysene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-25

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:12:00 PM

Lab ID: 2102074-006

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 1:05:00 AM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 1:05:00 AM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 1:05:00 AM	57859
Surr: Nitrobenzene-d5	81.0	26.3-112		%Rec	1	2/5/2021 1:05:00 AM	57859
Surr: 2-Fluorobiphenyl	44.0	21.1-110		%Rec	1	2/5/2021 1:05:00 AM	57859
Surr: 4-Terphenyl-d14	92.5	17.6-167		%Rec	1	2/5/2021 1:05:00 AM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Toluene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Ethylbenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2,4-Trimethylbenzene	6.7	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Naphthalene	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1-Methylnaphthalene	ND	20	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
2-Methylnaphthalene	ND	20	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Acetone	ND	50	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Bromobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Bromodichloromethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Bromoform	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Bromomethane	ND	15	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
2-Butanone	ND	50	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Carbon disulfide	ND	50	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Carbon Tetrachloride	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Chlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Chloroethane	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Chloroform	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Chloromethane	ND	15	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
2-Chlorotoluene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
4-Chlorotoluene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
cis-1,2-DCE	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Dibromochloromethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Dibromomethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-25

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:12:00 PM

Lab ID: 2102074-006

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1-Dichloroethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1-Dichloroethene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2-Dichloropropane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,3-Dichloropropane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
2,2-Dichloropropane	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1-Dichloropropene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Hexachlorobutadiene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
2-Hexanone	ND	50	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Isopropylbenzene	6.8	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
4-Isopropyltoluene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
4-Methyl-2-pentanone	ND	50	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Methylene Chloride	ND	15	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
n-Butylbenzene	ND	15	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
n-Propylbenzene	8.5	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
sec-Butylbenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Styrene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
tert-Butylbenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
trans-1,2-DCE	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Trichlorofluoromethane	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
1,2,3-Trichloropropane	ND	10	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Vinyl chloride	ND	5.0	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Xylenes, Total	ND	7.5	D	µg/L	5	2/9/2021 9:50:59 PM	C75172
Surr: 1,2-Dichloroethane-d4	82.0	70-130	D	%Rec	5	2/9/2021 9:50:59 PM	C75172
Surr: 4-Bromofluorobenzene	90.3	70-130	D	%Rec	5	2/9/2021 9:50:59 PM	C75172
Surr: Dibromofluoromethane	89.7	70-130	D	%Rec	5	2/9/2021 9:50:59 PM	C75172
Surr: Toluene-d8	90.8	70-130	D	%Rec	5	2/9/2021 9:50:59 PM	C75172

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-34

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:30:00 PM

Lab ID: 2102074-007

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.023	0.0010	*	mg/L	1	2/4/2021 11:47:43 AM	57890
Beryllium	ND	0.0010		mg/L	1	2/4/2021 11:47:43 AM	57890
Cadmium	ND	0.00050		mg/L	1	2/4/2021 11:47:43 AM	57890
Lead	0.0064	0.00050		mg/L	1	2/4/2021 11:47:43 AM	57890
Nickel	0.015	0.0010		mg/L	1	2/4/2021 11:47:43 AM	57890
Selenium	ND	0.0010		mg/L	1	2/4/2021 11:47:43 AM	57890
Silver	ND	0.00050		mg/L	1	2/4/2021 11:47:43 AM	57890
Thallium	ND	0.00025		mg/L	1	2/4/2021 11:47:43 AM	57890
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.86	0.50		mg/L	5	2/3/2021 11:55:15 AM	R75059
Chloride	270	10	*	mg/L	20	2/3/2021 12:08:07 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 11:55:15 AM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 11:55:15 AM	R75059
Sulfate	49	2.5		mg/L	5	2/3/2021 11:55:15 AM	R75059
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	1440	100	*D	mg/L	1	2/3/2021 3:10:00 PM	57864
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	1.8	0.015		mg/L	5	2/4/2021 10:09:21 AM	57890
Chromium	ND	0.0060		mg/L	1	2/4/2021 10:59:07 AM	57890
Iron	20	2.5	*	mg/L	50	2/4/2021 11:09:42 AM	57890
Manganese	2.1	0.010	*	mg/L	5	2/4/2021 10:09:21 AM	57890
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:29:39 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
1-Methylnaphthalene	0.24	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
2-Methylnaphthalene	0.18	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Acenaphthylene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Acenaphthene	0.30	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Fluorene	0.62	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Phenanthrene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Anthracene	0.30	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Fluoranthene	0.36	0.20		µg/L	1	2/5/2021 1:53:00 AM	57859
Pyrene	0.22	0.20		µg/L	1	2/5/2021 1:53:00 AM	57859
Benz(a)anthracene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Chrysene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-34

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:30:00 PM

Lab ID: 2102074-007

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Benzo(a)pyrene	ND	0.070		µg/L	1	2/5/2021 1:53:00 AM	57859
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/5/2021 1:53:00 AM	57859
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/5/2021 1:53:00 AM	57859
Surr: Nitrobenzene-d5	81.5	26.3-112		%Rec	1	2/5/2021 1:53:00 AM	57859
Surr: 2-Fluorobiphenyl	49.0	21.1-110		%Rec	1	2/5/2021 1:53:00 AM	57859
Surr: 4-Terphenyl-d14	90.0	17.6-167		%Rec	1	2/5/2021 1:53:00 AM	57859
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Toluene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Ethylbenzene	1.7	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Naphthalene	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
2-Methylnaphthalene	ND	4.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Acetone	27	10		µg/L	1	2/9/2021 10:19:39 PM	C75172
Bromobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Bromodichloromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Bromoform	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Bromomethane	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
2-Butanone	ND	10		µg/L	1	2/9/2021 10:19:39 PM	C75172
Carbon disulfide	ND	10		µg/L	1	2/9/2021 10:19:39 PM	C75172
Carbon Tetrachloride	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Chlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Chloroethane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Chloroform	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Chloromethane	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
2-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
4-Chlorotoluene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
cis-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Dibromochloromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Dibromomethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172

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

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

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Analytical Report

Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-34

Project: 2021 Giant Former Refinery

Collection Date: 2/1/2021 12:30:00 PM

Lab ID: 2102074-007

Matrix: AQUEOUS

Received Date: 2/2/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1-Dichloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1-Dichloroethene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,3-Dichloropropane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
2,2-Dichloropropane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Hexachlorobutadiene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
2-Hexanone	ND	10		µg/L	1	2/9/2021 10:19:39 PM	C75172
Isopropylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
4-Isopropyltoluene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
4-Methyl-2-pentanone	ND	10		µg/L	1	2/9/2021 10:19:39 PM	C75172
Methylene Chloride	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
n-Butylbenzene	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
n-Propylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
sec-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Styrene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
tert-Butylbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
trans-1,2-DCE	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Trichlorofluoromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Vinyl chloride	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172
Xylenes, Total	ND	1.5		µg/L	1	2/9/2021 10:19:39 PM	C75172
Surr: 1,2-Dichloroethane-d4	83.4	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172
Surr: 4-Bromofluorobenzene	91.3	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172
Surr: Dibromofluoromethane	89.8	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172
Surr: Toluene-d8	96.8	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172

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

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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57890		SampType: MBLK		TestCode: EPA Method 200.7: Metals						
Client ID: PBW		Batch ID: 57890		RunNo: 75073						
Prep Date: 2/3/2021		Analysis Date: 2/4/2021		SeqNo: 2649973			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Chromium	ND	0.0060								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LL LCS-57890		SampType: LCSLL		TestCode: EPA Method 200.7: Metals						
Client ID: BatchQC	Batch ID: 57890			RunNo: 75073						
Prep Date: 2/3/2021	Analysis Date: 2/4/2021			SeqNo: 2649975			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	89.3	50	150			
Chromium	ND	0.0060	0.006000	0	90.2	50	150			
Iron	ND	0.050	0.02000	0	115	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			

Sample ID: LCS-57890		SampType: LCS		TestCode: EPA Method 200.7: Metals						
Client ID: LCSW		Batch ID: 57890			RunNo: 75073					
Prep Date: 2/3/2021		Analysis Date: 2/4/2021			SeqNo: 2649977		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0030	0.5000	0	98.1	85	115			
Chromium	0.48	0.0060	0.5000	0	96.5	85	115			
Iron	0.49	0.050	0.5000	0	98.9	85	115			
Manganese	0.49	0.0020	0.5000	0	97.8	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: MB-57890	SampType: MBLK	TestCode: EPA 200.8: Metals								
Client ID: PBW	Batch ID: 57890	RunNo: 75061								
Prep Date: 2/3/2021	Analysis Date: 2/4/2021	SeqNo: 2649690	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-57890	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 57890	RunNo: 75061								
Prep Date: 2/3/2021	Analysis Date: 2/4/2021	SeqNo: 2649691	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			
Beryllium	ND	0.0010	0.001000	0	99.1	50	150			
Cadmium	ND	0.00050	0.0005000	0	95.2	50	150			
Lead	0.00050	0.00050	0.0005000	0	100	50	150			
Nickel	ND	0.0010	0.001000	0	91.7	50	150			
Selenium	ND	0.0010	0.001000	0	79.8	50	150			
Silver	ND	0.00050	0.0005000	0	65.5	50	150			

Sample ID: MSLCS-57890	SampType: LCS	TestCode: EPA 200.8: Metals								
Client ID: LCSW	Batch ID: 57890	RunNo: 75061								
Prep Date: 2/3/2021	Analysis Date: 2/4/2021	SeqNo: 2649692	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	98.1	85	115			
Beryllium	0.025	0.0010	0.02500	0	98.8	85	115			
Cadmium	0.012	0.00050	0.01250	0	97.5	85	115			
Lead	0.013	0.00050	0.01250	0	100	85	115			
Nickel	0.024	0.0010	0.02500	0	96.4	85	115			
Selenium	0.024	0.0010	0.02500	0	97.3	85	115			
Silver	0.012	0.00050	0.01250	0	99.8	85	115			
Thallium	0.012	0.00025	0.01250	0	99.5	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MSLLCS-TL-57890		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 57890		RunNo: 75061						
Prep Date: 2/3/2021		Analysis Date: 2/4/2021		SeqNo: 2649693		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00026	0.00025	0.0002500	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

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57968	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653912 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LLCS-57968	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653913 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	74.4	50	150			

Sample ID: LCS-57968	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653914 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	111	85	115			

Sample ID: 2102074-004DMS	SampType: MS	TestCode: EPA Method 245.1: Mercury								
Client ID: GBR-15	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654007 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	112	75	125			

Sample ID: 2102074-004DMSD	SampType: MSD	TestCode: EPA Method 245.1: Mercury								
Client ID: GBR-15	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654008 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	113	75	125	0.206	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75022	RunNo: 75022								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648284 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: 2102074-001CMS	SampType: ms	TestCode: EPA Method 300.0: Anions								
Client ID: GBR-24D	Batch ID: R75022	RunNo: 75022								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648287 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	92.7	86.8	110			

Sample ID: 2102074-001CMSD	SampType: msd	TestCode: EPA Method 300.0: Anions								
Client ID: GBR-24D	Batch ID: R75022	RunNo: 75022								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648288 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	94.1	86.8	110	1.58	20	

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75022	RunNo: 75022								
Prep Date:	Analysis Date: 2/2/2021	SeqNo: 2648292 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.90	0.10	1.000	0	90.2	90	110			
Nitrogen, Nitrate (As N)	2.3	0.10	2.500	0	93.2	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75057	RunNo: 75057								
Prep Date:	Analysis Date: 2/3/2021	SeqNo: 2649557 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: R75057	RunNo: 75057								
Prep Date:	Analysis Date: 2/3/2021	SeqNo: 2649558 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	97.8	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R75057			RunNo: 75057						
Prep Date:	Analysis Date: 2/3/2021			SeqNo: 2649558			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			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Sample ID: MB	SampType: mblk			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R75059			RunNo: 75059						
Prep Date:	Analysis Date: 2/3/2021			SeqNo: 2649611			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R75059			RunNo: 75059						
Prep Date:	Analysis Date: 2/3/2021			SeqNo: 2649619			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	101	90	110			
Chloride	4.8	0.50	5.000	0	95.3	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.5	90	110			
Sulfate	9.7	0.50	10.00	0	96.8	90	110			

Sample ID: MB	SampType: mblk			TestCode: EPA Method 300.0: Anions						
Client ID: PBW	Batch ID: R75078			RunNo: 75078						
Prep Date:	Analysis Date: 2/4/2021			SeqNo: 2650975			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs			TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R75078			RunNo: 75078						
Prep Date:	Analysis Date: 2/4/2021			SeqNo: 2650976			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.7	0.50	5.000	0	94.5	90	110			
Sulfate	9.6	0.50	10.00	0	96.2	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: C75172			RunNo: 75172						
Prep Date:	Analysis Date: 2/9/2021			SeqNo: 2654806		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.3	70	130			
Toluene	20	1.0	20.00	0	97.8	70	130			
Chlorobenzene	20	1.0	20.00	0	101	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	94.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	83.9	70	130			
Surr: 1,2-Dichloroethane-d4	7.8		10.00		77.8	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.2	70	130			
Surr: Dibromofluoromethane	8.8		10.00		87.7	70	130			
Surr: Toluene-d8	9.2		10.00		91.6	70	130			

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: C75172			RunNo: 75172						
Prep Date:	Analysis Date: 2/9/2021			SeqNo: 2654807		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb1	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: C75172			RunNo: 75172						
Prep Date:	Analysis Date: 2/9/2021			SeqNo: 2654807		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb1	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch ID: C75172				RunNo: 75172					
Prep Date:	Analysis Date: 2/9/2021				SeqNo: 2654807	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	7.5		10.00		74.7	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.3	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	10		10.00		99.9	70	130			

Sample ID: 2102074-001ams	SampType: MS				TestCode: EPA Method 8260B: VOLATILES					
Client ID: GBR-24D	Batch ID: C75172				RunNo: 75172					
Prep Date:	Analysis Date: 2/9/2021				SeqNo: 2654812	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.4	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Chlorobenzene	19	1.0	20.00	0	97.1	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	95.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	84.3	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	8.7		10.00		87.1	70	130			
Surr: Toluene-d8	9.5		10.00		94.9	70	130			

Sample ID: 2102074-001amsd	SampType: MSD				TestCode: EPA Method 8260B: VOLATILES					
Client ID: GBR-24D	Batch ID: C75172				RunNo: 75172					
Prep Date:	Analysis Date: 2/9/2021				SeqNo: 2654813	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	90.0	70	130	1.53	20	
Toluene	19	1.0	20.00	0	92.8	70	130	10.2	20	
Chlorobenzene	18	1.0	20.00	0	90.9	70	130	6.69	20	
1,1-Dichloroethene	18	1.0	20.00	0	89.6	70	130	6.23	20	
Trichloroethene (TCE)	16	1.0	20.00	0	82.0	70	130	2.78	20	
Surr: 1,2-Dichloroethane-d4	8.7		10.00		87.3	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.6		10.00		95.7	70	130	0	0	
Surr: Dibromofluoromethane	9.2		10.00		92.2	70	130	0	0	
Surr: Toluene-d8	9.5		10.00		94.6	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb-57859	SampType: MBLK	TestCode: EPA Method 8270SIM								
Client ID: PBW	Batch ID: 57859	RunNo: 75123								
Prep Date: 2/2/2021	Analysis Date: 2/4/2021	SeqNo: 2651788 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.10								
2-Methylnaphthalene	ND	0.10								
Acenaphthylene	ND	0.10								
Acenaphthene	ND	0.10								
Fluorene	ND	0.10								
Phenanthrene	ND	0.10								
Anthracene	ND	0.10								
Fluoranthene	ND	0.20								
Pyrene	ND	0.20								
Benz(a)anthracene	ND	0.10								
Chrysene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.30								
Surr: Nitrobenzene-d5	3.1		4.000		78.5	26.3	112			
Surr: 2,4,6-Tribromophenol	4.1		8.000		51.8	27.7	118			
Surr: 2-Fluorobiphenyl	2.2		4.000		54.5	21.1	110			
Surr: 4-Terphenyl-d14	3.2		4.000		80.0	17.6	167			

Sample ID: lcs-57859	SampType: LCS	TestCode: EPA Method 8270SIM								
Client ID: LCSW	Batch ID: 57859	RunNo: 75123								
Prep Date: 2/2/2021	Analysis Date: 2/4/2021	SeqNo: 2651789 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.2	0.10	2.000	0	60.0	18.5	83.4			
1-Methylnaphthalene	1.2	0.10	2.000	0	61.0	15.1	89.6			
2-Methylnaphthalene	1.2	0.10	2.000	0	61.0	15	90.6			
Acenaphthylene	1.3	0.10	2.000	0	65.0	18.2	95.3			
Acenaphthene	1.2	0.10	2.000	0	60.0	23.9	90.3			
Fluorene	1.2	0.10	2.000	0	62.0	16.8	106			
Phenanthrene	1.2	0.10	2.000	0	62.0	23.3	105			
Anthracene	1.3	0.10	2.000	0	66.0	15	112			
Fluoranthene	1.7	0.20	2.000	0	85.0	15.4	138			
Pyrene	1.4	0.20	2.000	0	72.0	15	128			
Benz(a)anthracene	1.8	0.10	2.000	0	91.0	38.7	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: Ics-57859	SampType: LCS			TestCode: EPA Method 8270SIM						
Client ID: LCSW	Batch ID: 57859			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/4/2021			SeqNo: 2651789			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	1.6	0.10	2.000	0	82.0	32.6	96.6			
Benzo(b+k)fluoranthene	3.4	0.20	4.000	0	85.5	18.3	114			
Benzo(a)pyrene	1.6	0.070	2.000	0	81.0	24.5	123			
Dibenz(a,h)anthracene	1.8	0.10	2.000	0	88.0	17.8	118			
Benzo(g,h,i)perylene	1.7	0.10	2.000	0	85.0	22.2	110			
Indeno(1,2,3-cd)pyrene	2.9	0.30	2.000	0	143	20.8	115			S
Surr: Nitrobenzene-d5	4.6		5.000		92.8	26.3	112			
Surr: 2,4,6-Tribromophenol	6.1		10.00		60.8	27.7	118			
Surr: 2-Fluorobiphenyl	3.3		5.000		66.0	21.1	110			
Surr: 4-Terphenyl-d14	5.3		5.000		107	17.6	167			

Sample ID: Icsd-57859	SampType: LCSD			TestCode: EPA Method 8270SIM						
Client ID: LCSS02	Batch ID: 57859			RunNo: 75123						
Prep Date: 2/2/2021	Analysis Date: 2/4/2021			SeqNo: 2651790			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.4	0.10	2.000	0	72.0	18.5	83.4	18.2	20	
1-Methylnaphthalene	1.5	0.10	2.000	0	73.0	15.1	89.6	17.9	20	
2-Methylnaphthalene	1.5	0.10	2.000	0	75.0	15	90.6	20.6	20	R
Acenaphthylene	1.5	0.10	2.000	0	75.0	18.2	95.3	14.3	20	
Acenaphthene	1.4	0.10	2.000	0	70.0	23.9	90.3	15.4	20	
Fluorene	1.5	0.10	2.000	0	74.0	16.8	106	17.6	20	
Phenanthrene	1.4	0.10	2.000	0	72.0	23.3	105	14.9	20	
Anthracene	1.5	0.10	2.000	0	77.0	15	112	15.4	20	
Fluoranthene	1.8	0.20	2.000	0	88.0	15.4	138	3.47	20	
Pyrene	1.4	0.20	2.000	0	70.0	15	128	2.82	20	
Benz(a)anthracene	1.7	0.10	2.000	0	83.0	38.7	111	9.20	20	
Chrysene	1.5	0.10	2.000	0	75.0	32.6	96.6	8.92	20	
Benzo(b+k)fluoranthene	2.9	0.20	4.000	0	73.5	18.3	114	15.1	0	
Benzo(a)pyrene	1.4	0.070	2.000	0	69.0	24.5	123	16.0	20	
Dibenz(a,h)anthracene	1.6	0.10	2.000	0	79.0	17.8	118	10.8	20	
Benzo(g,h,i)perylene	1.5	0.10	2.000	0	76.0	22.2	110	11.2	20	
Indeno(1,2,3-cd)pyrene	2.5	0.30	2.000	0	125	20.8	115	13.4	20	S
Surr: Nitrobenzene-d5	5.5		5.000		111	26.3	112	0	0	
Surr: 2,4,6-Tribromophenol	7.1		10.00		70.6	27.7	118	0	0	
Surr: 2-Fluorobiphenyl	3.8		5.000		76.8	21.1	110	0	0	
Surr: 4-Terphenyl-d14	4.7		5.000		94.8	17.6	167	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 32 of 33

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102074

12-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57864	SampType: MBLK				TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: PBW	Batch ID: 57864				RunNo: 75039					
Prep Date: 2/2/2021	Analysis Date: 2/3/2021				SeqNo: 2648821	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

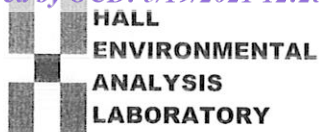
Sample ID: LCS-57864	SampType: LCS				TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: LCSW	Batch ID: 57864				RunNo: 75039					
Prep Date: 2/2/2021	Analysis Date: 2/3/2021				SeqNo: 2648822	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	988	20.0	1000	0	98.8	80	120			

Sample ID: 2102074-005CDUP	SampType: DUP				TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID: GBR-21D	Batch ID: 57864				RunNo: 75039					
Prep Date: 2/2/2021	Analysis Date: 2/3/2021				SeqNo: 2648842	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2270	20.0						1.96	10	*

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



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

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2102074

RcptNo: 1

Received By: Juan Rojas

2/2/2021 7:30:00 AM

Juan Rojas

Completed By: Cheyenne Cason

2/2/2021 8:53:25 AM

Reviewed By: *SGC 2/2/21*

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☐ No ☒ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐ Sample Not Frozen
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace $<1/4"$ for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH: *14*
(<2 or >12 unless noted)

Adjusted? *yes*

Checked by: *JO 2/2/21*

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

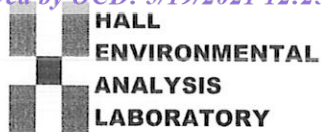
Regarding: _____

Client Instructions: _____

16. Additional remarks: *for metals analysis added 0.5 mL HNO₃ to sample -006D and -007D*

17. Cooler Information *for proper pH. JO 2/2/21*

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.3	Good	Yes			
2	0.6	Good	Yes			
3	0.5	Good	Yes			
4	5.8	Good	Yes			



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

Sample Log-In Check List

Client Name: **Western Refining
Southwest, Inc.**

Work Order Number: **2102074**

RcptNo: 1

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
5	1.3	Good	Yes			
6	-2.1	Good	Yes			

Chain-of-Custody Record

Client: MarathonMailing Address: Greg McCartney

Phone #: _____

email or Fax#: _____

QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other _____EDD (Type) PDFProject Manager: Stuart HydeSampler: C. McGinn, E. CarrollOn Ice: ☒ Yes ☐ No# of Coolers: 6Cooler Temp (including CF): See Chart (°C)

Container Type and #

Preservative Type

HEAL No.

Date

Time

Matrix

Sample Name

Date

Time

Relinquished by:

Relinquished by:

Date

Time

Via

Received by:

Received by:

Date

Time

Via

Received by:

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

2001 Giant Former Refinery

Project #:

Project Manager:

Stuart HydeSampler: C. McGinn, E. CarrollOn Ice: ☒ Yes ☐ No# of Coolers: 6Cooler Temp (including CF): See Chart (°C)

Container Type and #

Preservative Type

HEAL No.

VariousVarious001002003004005006007

Received by:

Received by:

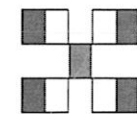
Date

Time

Via

Received by:

Received by:

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)

TPH: 8015D (GRO / DRO / MRO)

8081 Pesticides/8082 PCB's

EDB (Method 504.1)

PAHs by 8310 or 8270SIMS

RCRA 8 Metals

Cl, F, Br, NO₃, NO₂, PO₄, SO₄

8260 (VOA)

8270 (Semi-VOA)

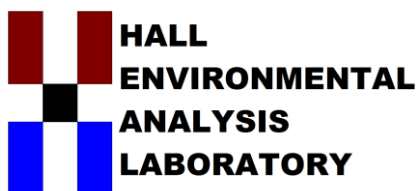
Total Coliform (Present/Absent)

See attachedRemarks: cc: Stuart.h Hyde@wsp.com
Caitlin.mcginn@wsp.com
Eric.Carroll@wsp.com

Quote # 2112

Recommended Analyte List for GBR Site-Wide Sampling Event	
VOCs Method 8260	PAHs Method 8270
benzene	naphthalene
toluene	1-methylnaphthalene
ethylbenzene	2-methylnaphthalene
methyl tert-butyl ether (MTBE)	acenaphthylene
1,2,4-trimethylbenzene	acenaphthene
1,3,5-trimethylbenzene	fluorene
1,2-dichloroethane (EDC)	phenanthrene
1,2-dibromoethane (EDB)	anthracene
naphthalene	fluoranthene
1-methylnaphthalene	pyrene
2-methylnaphthalene	benz(a)anthracene
acetone	chrysene
bromobenzene	benzo(b)fluoranthene
bromodichloromethane	benzo(k)fluoranthene
bromoform	benzo(a)pyrene
bromomethane	dibenz(a,h)anthracene
2-butanone	benzo(g,h,i)perylene
carbon disulfide	indeno(1,2,3-cd)pyrene
carbon tetrachloride	Anions Method 300.0
chlorobenzene	chloride
chloroethane	sulfate
chloroform	fluoride
chloromethane	nitrate + nitrite as N
2-chlorotoluene	Metals Method 200.7
4-chlorotoluene	barium*
cis-1,2-dichloroethene (cis-1,2-DCE)	beryllium
cis-1,3-dichloropropene	cadmium*
1,2-dibromo-3-chloropropane	chromium*
dibromochloromethane	iron
dibromomethane	manganese
1,2-dichlorobenzene	nickel
1,3-dichlorobenzene	silver*
1,4-dichlorobenzene	Metals Method 200.8
dichlorodifluoromethane	arsenic*
1,1-dichloroethane	lead*
1,1-dichloroethene (1,1-DCE)	selenium*
1,2-dichloropropane	thallium
1,3-dichloropropane	Mercury
2,2-dichloropropane	Mercury*
1,1-dichloropropene	Total Dissolved Solids Method M2540C
hexachlorobutadiene	total dissolved solids
2-hexanone	
isopropylbenzene	
4-isopropyltoluene	
4-methyl-2-pentanone	
methylene chloride	
n-butylbenzene	
n-propylbenzene	
sec-butylbenzene	
styrene	
tert-butylbenzene	
1,1,1,2-tetrachloroethane	
1,1,2,2-tetrachloroethane	
tetrachloroethene (PCE)	
trans-1,2-dichloroethene (trans-1,2-DCE)	
trans-1,3-dichloropropene	
1,2,3-trichlorobenzene	
1,2,4-trichlorobenzene	
1,1,1-trichloroethane	
1,1,2-trichloroethane	
trichloroethene (TCE)	
trichlorofluoromethane	
1,2,3-trichloropropane	
vinyl chloride	
xylene, total	

* - asterisks denotes RCRA 8 Metal



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

February 24, 2021

Gregory McCartney
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: 2021 Giant Former Refinery

OrderNo.: 2102148

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 2/3/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-20

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:00:00 AM

Lab ID: 2102148-001

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0026	0.0010		mg/L	1	2/9/2021 1:17:25 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:17:25 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:17:25 PM	57977
Lead	0.0034	0.00050		mg/L	1	2/9/2021 1:17:25 PM	57977
Nickel	0.0073	0.0010		mg/L	1	2/9/2021 1:17:25 PM	57977
Selenium	ND	0.0010		mg/L	1	2/9/2021 1:17:25 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:17:25 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:17:25 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.66	0.50		mg/L	5	2/3/2021 5:29:50 PM	R75059
Chloride	89	2.5		mg/L	5	2/3/2021 5:29:50 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 5:29:50 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 5:29:50 PM	R75059
Sulfate	250	10		mg/L	20	2/3/2021 5:42:44 PM	R75059
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1850	200	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.23	0.0030		mg/L	1	2/9/2021 9:10:13 AM	57977
Chromium	ND	0.0060		mg/L	1	2/9/2021 9:10:13 AM	57977
Iron	22	2.5	*	mg/L	50	2/9/2021 10:04:19 AM	57977
Manganese	0.53	0.0020	*	mg/L	1	2/9/2021 9:10:13 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:35:48 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	2.6	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
1-Methylnaphthalene	0.72	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
2-Methylnaphthalene	0.60	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Acenaphthene	0.30	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Fluorene	1.9	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Phenanthrene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Anthracene	0.30	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Fluoranthene	0.38	0.20		µg/L	1	2/9/2021 10:07:00 PM	57966
Pyrene	0.28	0.20		µg/L	1	2/9/2021 10:07:00 PM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Chrysene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-20

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:00:00 AM

Lab ID: 2102148-001

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/9/2021 10:07:00 PM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/9/2021 10:07:00 PM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/9/2021 10:07:00 PM	57966
Surr: Nitrobenzene-d5	14.5	26.3-112	S	%Rec	1	2/9/2021 10:07:00 PM	57966
Surr: 2-Fluorobiphenyl	34.5	21.1-110		%Rec	1	2/9/2021 10:07:00 PM	57966
Surr: 4-Terphenyl-d14	64.5	17.6-167		%Rec	1	2/9/2021 10:07:00 PM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	14	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Toluene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Ethylbenzene	120	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,4-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Naphthalene	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Acetone	ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Bromobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Bromodichloromethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Bromoform	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Bromomethane	ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2-Butanone	ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Carbon disulfide	ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Carbon Tetrachloride	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Chlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Chloroethane	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Chloroform	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Chloromethane	ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
4-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
cis-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Dibromochloromethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Dibromomethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
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B	Analyte detected in the associated Method Blank
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J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-20

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:00:00 AM

Lab ID: 2102148-001

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dichloroethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dichloroethene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,3-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2,2-Dichloropropane	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Hexachlorobutadiene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2-Hexanone	ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Isopropylbenzene	24	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
4-Isopropyltoluene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
4-Methyl-2-pentanone	ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Methylene Chloride	ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
n-Butylbenzene	ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
n-Propylbenzene	19	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
sec-Butylbenzene	6.4	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Styrene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
tert-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
trans-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Trichlorofluoromethane	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,3-Trichloropropane	ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Vinyl chloride	ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Xylenes, Total	ND	7.5	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Surr: 1,2-Dichloroethane-d4	98.0	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr: 4-Bromofluorobenzene	97.3	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr: Dibromofluoromethane	102	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr: Toluene-d8	105	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-5

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:15:00 AM

Lab ID: 2102148-002

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0043	0.0010		mg/L	1	2/9/2021 1:19:31 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:19:31 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:19:31 PM	57977
Lead	0.0063	0.00050		mg/L	1	2/9/2021 1:19:31 PM	57977
Nickel	0.0049	0.0010		mg/L	1	2/9/2021 1:19:31 PM	57977
Selenium	0.0026	0.0010		mg/L	1	2/9/2021 1:19:31 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:19:31 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:19:31 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	ND	0.50		mg/L	5	2/3/2021 5:55:36 PM	R75059
Chloride	89	10		mg/L	20	2/3/2021 6:08:28 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 5:55:36 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 5:55:36 PM	R75059
Sulfate	1700	25	*	mg/L	50	2/4/2021 10:11:49 PM	R75089
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3290	40.0	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.024	0.0030		mg/L	1	2/9/2021 9:19:15 AM	57977
Chromium	0.054	0.0060		mg/L	1	2/15/2021 11:06:52 AM	57977
Iron	4.5	0.25	*	mg/L	5	2/9/2021 9:20:34 AM	57977
Manganese	4.4	0.010	*	mg/L	5	2/9/2021 9:20:34 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:37:49 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	0.44	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
1-Methylnaphthalene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
2-Methylnaphthalene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Acenaphthene	0.54	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Fluorene	1.7	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Phenanthrene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Anthracene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Fluoranthene	ND	0.20		µg/L	1	2/9/2021 10:54:00 PM	57966
Pyrene	0.24	0.20		µg/L	1	2/9/2021 10:54:00 PM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Chrysene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-5

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:15:00 AM

Lab ID: 2102148-002

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/9/2021 10:54:00 PM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Benzo(g,h,i)perylene	0.22	0.10		µg/L	1	2/9/2021 10:54:00 PM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/9/2021 10:54:00 PM	57966
Surr: Nitrobenzene-d5	148	26.3-112	S	%Rec	1	2/9/2021 10:54:00 PM	57966
Surr: 2-Fluorobiphenyl	63.0	21.1-110		%Rec	1	2/9/2021 10:54:00 PM	57966
Surr: 4-Terphenyl-d14	82.5	17.6-167		%Rec	1	2/9/2021 10:54:00 PM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Toluene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Ethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,4-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Naphthalene	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Acetone	ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Bromobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Bromodichloromethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Bromoform	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Bromomethane	ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2-Butanone	ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Carbon disulfide	ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Carbon Tetrachloride	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Chlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Chloroethane	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Chloroform	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Chloromethane	ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
4-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
cis-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Dibromochloromethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Dibromomethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-5

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:15:00 AM

Lab ID: 2102148-002

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dichloroethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dichloroethene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,3-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2,2-Dichloropropane	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Hexachlorobutadiene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2-Hexanone	ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Isopropylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
4-Isopropyltoluene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
4-Methyl-2-pentanone	ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Methylene Chloride	ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
n-Butylbenzene	ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
n-Propylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
sec-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Styrene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
tert-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
trans-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Trichlorofluoromethane	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,3-Trichloropropane	ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Vinyl chloride	ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Xylenes, Total	ND	7.5	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Surr: 1,2-Dichloroethane-d4	110	70-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr: 4-Bromofluorobenzene	100	70-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr: Dibromofluoromethane	108	70-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr: Toluene-d8	105	70-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-11

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:28:00 AM

Lab ID: 2102148-003

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0015	0.0010		mg/L	1	2/9/2021 1:21:38 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:21:38 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:21:38 PM	57977
Lead	0.0018	0.00050		mg/L	1	2/9/2021 1:21:38 PM	57977
Nickel	0.0061	0.0010		mg/L	1	2/9/2021 1:21:38 PM	57977
Selenium	ND	0.0010		mg/L	1	2/9/2021 1:21:38 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:21:38 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:21:38 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	ND	0.50		mg/L	5	2/3/2021 6:21:21 PM	R75059
Chloride	110	10		mg/L	20	2/3/2021 6:34:13 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 6:21:21 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 6:21:21 PM	R75059
Sulfate	960	25	*	mg/L	50	2/4/2021 10:24:14 PM	R75089
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1890	200	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.15	0.0030		mg/L	1	2/9/2021 9:21:54 AM	57977
Chromium	ND	0.0060		mg/L	1	2/9/2021 9:21:54 AM	57977
Iron	44	5.0	*	mg/L	100	2/9/2021 10:05:56 AM	57977
Manganese	0.93	0.010	*	mg/L	5	2/9/2021 9:25:53 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:39:49 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	0.36	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
1-Methylnaphthalene	0.34	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
2-Methylnaphthalene	0.24	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Acenaphthene	0.36	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Fluorene	1.4	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Phenanthrene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Anthracene	0.28	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Fluoranthene	0.36	0.20		µg/L	1	2/9/2021 11:41:00 PM	57966
Pyrene	0.22	0.20		µg/L	1	2/9/2021 11:41:00 PM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Chrysene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-11

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:28:00 AM

Lab ID: 2102148-003

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/9/2021 11:41:00 PM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/9/2021 11:41:00 PM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/9/2021 11:41:00 PM	57966
Surr: Nitrobenzene-d5	113	26.3-112	S	%Rec	1	2/9/2021 11:41:00 PM	57966
Surr: 2-Fluorobiphenyl	50.5	21.1-110		%Rec	1	2/9/2021 11:41:00 PM	57966
Surr: 4-Terphenyl-d14	65.0	17.6-167		%Rec	1	2/9/2021 11:41:00 PM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	11	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Toluene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Ethylbenzene	8.5	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2,4-Trimethylbenzene	6.8	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Naphthalene	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
2-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Acetone	ND	50	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Bromobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Bromodichloromethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Bromoform	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Bromomethane	ND	15	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
2-Butanone	ND	50	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Carbon disulfide	ND	50	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Carbon Tetrachloride	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Chlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Chloroethane	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Chloroform	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Chloromethane	ND	15	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
2-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
4-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
cis-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Dibromochloromethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Dibromomethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-11

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:28:00 AM

Lab ID: 2102148-003

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1-Dichloroethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1-Dichloroethene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,3-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
2,2-Dichloropropane	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Hexachlorobutadiene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
2-Hexanone	ND	50	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Isopropylbenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
4-Isopropyltoluene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
4-Methyl-2-pentanone	ND	50	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Methylene Chloride	ND	15	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
n-Butylbenzene	ND	15	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
n-Propylbenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
sec-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Styrene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
tert-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
trans-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Trichlorofluoromethane	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
1,2,3-Trichloropropane	ND	10	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Vinyl chloride	ND	5.0	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Xylenes, Total	15	7.5	D	µg/L	5	2/10/2021 4:24:17 AM	A75169
Surr: 1,2-Dichloroethane-d4	99.4	70-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169
Surr: 4-Bromofluorobenzene	99.8	70-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169
Surr: Dibromofluoromethane	103	70-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169
Surr: Toluene-d8	105	70-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-8

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:40:00 AM

Lab ID: 2102148-004

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.062	0.0050	*	mg/L	5	2/9/2021 1:53:14 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:23:44 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:23:44 PM	57977
Lead	0.038	0.0025	*	mg/L	5	2/9/2021 1:53:14 PM	57977
Nickel	0.018	0.0010		mg/L	1	2/9/2021 1:23:44 PM	57977
Selenium	0.0027	0.0010		mg/L	1	2/9/2021 1:23:44 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:23:44 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:23:44 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.59	0.50		mg/L	5	2/3/2021 7:12:55 PM	R75059
Chloride	100	10		mg/L	20	2/3/2021 7:25:47 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 7:12:55 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 7:12:55 PM	R75059
Sulfate	1300	25	*	mg/L	50	2/4/2021 10:36:38 PM	R75089
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2430	100	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.35	0.0030		mg/L	1	2/9/2021 9:29:51 AM	57977
Chromium	ND	0.0060		mg/L	1	2/15/2021 11:09:00 AM	57977
Iron	52	5.0	*	mg/L	100	2/9/2021 10:07:35 AM	57977
Manganese	3.6	0.010	*	mg/L	5	2/9/2021 9:39:54 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:41:51 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
1-Methylnaphthalene	0.20	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
2-Methylnaphthalene	0.20	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Acenaphthene	0.96	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Fluorene	1.9	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Phenanthrene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Anthracene	0.46	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Fluoranthene	0.38	0.20		µg/L	1	2/10/2021 12:28:00 AM	57966
Pyrene	0.36	0.20		µg/L	1	2/10/2021 12:28:00 AM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Chrysene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-8

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:40:00 AM

Lab ID: 2102148-004

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/10/2021 12:28:00 AM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/10/2021 12:28:00 AM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/10/2021 12:28:00 AM	57966
Surr: Nitrobenzene-d5	142	26.3-112	S	%Rec	1	2/10/2021 12:28:00 AM	57966
Surr: 2-Fluorobiphenyl	70.5	21.1-110		%Rec	1	2/10/2021 12:28:00 AM	57966
Surr: 4-Terphenyl-d14	89.5	17.6-167		%Rec	1	2/10/2021 12:28:00 AM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Toluene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Naphthalene	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Acetone	39	10		µg/L	1	2/10/2021 4:51:32 AM	A75169
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Bromoform	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Bromomethane	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
2-Butanone	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169
Carbon disulfide	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Chloroethane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Chloroform	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Chloromethane	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-8

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 10:40:00 AM

Lab ID: 2102148-004

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
2-Hexanone	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Styrene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 4:51:32 AM	A75169
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	2/10/2021 4:51:32 AM	A75169
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/10/2021 4:51:32 AM	A75169
Surr: Dibromofluoromethane	100	70-130		%Rec	1	2/10/2021 4:51:32 AM	A75169
Surr: Toluene-d8	104	70-130		%Rec	1	2/10/2021 4:51:32 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-9

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:15:00 AM

Lab ID: 2102148-005

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0026	0.0010		mg/L	1	2/9/2021 1:25:51 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:25:51 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:25:51 PM	57977
Lead	0.00063	0.00050		mg/L	1	2/9/2021 1:25:51 PM	57977
Nickel	0.016	0.0010		mg/L	1	2/9/2021 1:25:51 PM	57977
Selenium	ND	0.0010		mg/L	1	2/9/2021 1:25:51 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:25:51 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:25:51 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.88	0.50		mg/L	5	2/3/2021 7:38:39 PM	R75059
Chloride	110	10		mg/L	20	2/3/2021 7:51:31 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 7:38:39 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 7:38:39 PM	R75059
Sulfate	1200	25	*	mg/L	50	2/4/2021 10:49:02 PM	R75089
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2520	20.0	*	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.018	0.0030		mg/L	1	2/9/2021 9:41:12 AM	57977
Chromium	ND	0.0060		mg/L	1	2/9/2021 9:41:12 AM	57977
Iron	1.6	0.25	*	mg/L	5	2/10/2021 8:58:15 AM	57977
Manganese	0.43	0.0020	*	mg/L	1	2/9/2021 9:41:12 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:43:52 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
1-Methylnaphthalene	0.16	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
2-Methylnaphthalene	0.18	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Acenaphthene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Fluorene	0.24	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Phenanthrene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Anthracene	0.28	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Fluoranthene	ND	0.20		µg/L	1	2/10/2021 1:15:00 AM	57966
Pyrene	0.20	0.20		µg/L	1	2/10/2021 1:15:00 AM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Chrysene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-9

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:15:00 AM

Lab ID: 2102148-005

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/10/2021 1:15:00 AM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/10/2021 1:15:00 AM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/10/2021 1:15:00 AM	57966
Surr: Nitrobenzene-d5	106	26.3-112		%Rec	1	2/10/2021 1:15:00 AM	57966
Surr: 2-Fluorobiphenyl	51.5	21.1-110		%Rec	1	2/10/2021 1:15:00 AM	57966
Surr: 4-Terphenyl-d14	87.5	17.6-167		%Rec	1	2/10/2021 1:15:00 AM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Toluene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Naphthalene	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Acetone	ND	10		µg/L	1	2/10/2021 5:18:48 AM	A75169
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Bromoform	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Bromomethane	ND	3.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
2-Butanone	ND	10		µg/L	1	2/10/2021 5:18:48 AM	A75169
Carbon disulfide	ND	10		µg/L	1	2/10/2021 5:18:48 AM	A75169
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Chloroethane	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Chloroform	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Chloromethane	ND	3.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-9

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:15:00 AM

Lab ID: 2102148-005

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
2-Hexanone	ND	10		µg/L	1	2/10/2021 5:18:48 AM	A75169
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 5:18:48 AM	A75169
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Styrene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 5:18:48 AM	A75169
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 5:18:48 AM	A75169
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/10/2021 5:18:48 AM	A75169
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/10/2021 5:18:48 AM	A75169
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/10/2021 5:18:48 AM	A75169
Surr: Toluene-d8	101	70-130		%Rec	1	2/10/2021 5:18:48 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-13

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:25:00 AM

Lab ID: 2102148-006

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0018	0.0010		mg/L	1	2/9/2021 1:27:57 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:27:57 PM	57977
Cadmium	ND	0.00050		mg/L	1	2/9/2021 1:27:57 PM	57977
Lead	0.0048	0.00050		mg/L	1	2/9/2021 1:27:57 PM	57977
Nickel	0.011	0.0010		mg/L	1	2/9/2021 1:27:57 PM	57977
Selenium	ND	0.0050		mg/L	5	2/16/2021 5:20:14 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:27:57 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:27:57 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	1.1	0.50		mg/L	5	2/3/2021 8:04:24 PM	R75059
Chloride	110	10		mg/L	20	2/3/2021 8:17:16 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 8:04:24 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 8:04:24 PM	R75059
Sulfate	1200	25	*	mg/L	50	2/4/2021 11:01:27 PM	R75089
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2380	100	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.042	0.0030		mg/L	1	2/9/2021 9:51:06 AM	57977
Chromium	ND	0.0060		mg/L	1	2/9/2021 9:51:06 AM	57977
Iron	3.1	0.25	*	mg/L	5	2/9/2021 9:52:25 AM	57977
Manganese	4.7	0.010	*	mg/L	5	2/9/2021 9:52:25 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:45:54 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
1-Methylnaphthalene	0.16	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
2-Methylnaphthalene	0.20	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Acenaphthylene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Acenaphthene	0.24	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Fluorene	0.34	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Phenanthrene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Anthracene	0.32	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Fluoranthene	0.36	0.20		µg/L	1	2/10/2021 2:02:00 AM	57966
Pyrene	0.36	0.20		µg/L	1	2/10/2021 2:02:00 AM	57966
Benz(a)anthracene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Chrysene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Benzo(b)fluoranthene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-13

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:25:00 AM

Lab ID: 2102148-006

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Benzo(a)pyrene	ND	0.070		µg/L	1	2/10/2021 2:02:00 AM	57966
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/10/2021 2:02:00 AM	57966
Surr: Nitrobenzene-d5	137	26.3-112	S	%Rec	1	2/10/2021 2:02:00 AM	57966
Surr: 2-Fluorobiphenyl	70.0	21.1-110		%Rec	1	2/10/2021 2:02:00 AM	57966
Surr: 4-Terphenyl-d14	87.0	17.6-167		%Rec	1	2/10/2021 2:02:00 AM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Toluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Naphthalene	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Acetone	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Bromoform	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Bromomethane	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
2-Butanone	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169
Carbon disulfide	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Chloroethane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Chloroform	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Chloromethane	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-13

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:25:00 AM

Lab ID: 2102148-006

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
2-Hexanone	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Styrene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 5:46:07 AM	A75169
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169
Surr: Dibromofluoromethane	101	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169
Surr: Toluene-d8	104	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169

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

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

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-35

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:55:00 AM

Lab ID: 2102148-007

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.012	0.0010	*	mg/L	1	2/9/2021 1:34:16 PM	57977
Beryllium	ND	0.0010		mg/L	1	2/9/2021 1:34:16 PM	57977
Cadmium	0.0023	0.00050		mg/L	1	2/9/2021 1:34:16 PM	57977
Lead	0.032	0.0025	*	mg/L	5	2/9/2021 1:55:21 PM	57977
Nickel	0.015	0.0010		mg/L	1	2/9/2021 1:34:16 PM	57977
Selenium	ND	0.0010		mg/L	1	2/9/2021 1:34:16 PM	57977
Silver	ND	0.00050		mg/L	1	2/9/2021 1:34:16 PM	57977
Thallium	ND	0.00025		mg/L	1	2/9/2021 1:34:16 PM	57977
EPA METHOD 300.0: ANIONS							Analyst: CAS
Fluoride	0.92	0.50		mg/L	5	2/3/2021 8:30:09 PM	R75059
Chloride	250	10	*	mg/L	20	2/3/2021 8:43:00 PM	R75059
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/3/2021 8:30:09 PM	R75059
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/3/2021 8:30:09 PM	R75059
Sulfate	10	2.5		mg/L	5	2/3/2021 8:30:09 PM	R75059
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1230	200	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	2.7	0.015	*	mg/L	5	2/9/2021 10:01:25 AM	57977
Chromium	ND	0.0060		mg/L	1	2/9/2021 10:00:07 AM	57977
Iron	26	2.5	*	mg/L	50	2/9/2021 10:13:13 AM	R75157
Manganese	1.8	0.010	*	mg/L	5	2/9/2021 10:01:25 AM	57977
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/9/2021 1:47:57 PM	57968
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	25	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
1-Methylnaphthalene	220	2.0		µg/L	20	2/17/2021 12:52:00 AM	57966
2-Methylnaphthalene	37	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Acenaphthylene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Acenaphthene	47	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Fluorene	61	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Phenanthrene	87	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Anthracene	16	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Fluoranthene	9.4	2.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Pyrene	27	2.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Benz(a)anthracene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Chrysene	2.6	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Benzo(b)fluoranthene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-35

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:55:00 AM

Lab ID: 2102148-007

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Benzo(a)pyrene	ND	0.70	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Dibenz(a,h)anthracene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Benzo(g,h,i)perylene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Indeno(1,2,3-cd)pyrene	ND	3.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966
Surr: Nitrobenzene-d5	405	26.3-112	SD	%Rec	10	2/10/2021 2:49:00 AM	57966
Surr: 2-Fluorobiphenyl	105	21.1-110	D	%Rec	10	2/10/2021 2:49:00 AM	57966
Surr: 4-Terphenyl-d14	110	17.6-167	D	%Rec	10	2/10/2021 2:49:00 AM	57966
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Toluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Naphthalene	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Acetone	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Bromoform	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Bromomethane	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
2-Butanone	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169
Carbon disulfide	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Chloroethane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Chloroform	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Chloromethane	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102148

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-35

Project: 2021 Giant Former Refinery

Collection Date: 2/2/2021 11:55:00 AM

Lab ID: 2102148-007

Matrix: AQUEOUS

Received Date: 2/3/2021 7:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
2-Hexanone	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Styrene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 6:13:18 AM	A75169
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	2/10/2021 6:13:18 AM	A75169
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/10/2021 6:13:18 AM	A75169
Surr: Dibromofluoromethane	105	70-130		%Rec	1	2/10/2021 6:13:18 AM	A75169
Surr: Toluene-d8	106	70-130		%Rec	1	2/10/2021 6:13:18 AM	A75169

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

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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57977	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653478 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Chromium	ND	0.0060								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LLCS-57977	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653480 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	120	50	150			
Chromium	ND	0.0060	0.006000	0	61.6	50	150			
Iron	ND	0.050	0.02000	0	113	50	150			
Manganese	ND	0.0020	0.002000	0	97.7	50	150			

Sample ID: LCS-57977	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653482 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0030	0.5000	0	99.2	85	115			
Chromium	0.44	0.0060	0.5000	0	87.9	85	115			
Iron	0.49	0.050	0.5000	0	97.5	85	115			
Manganese	0.48	0.0020	0.5000	0	96.2	85	115			

Sample ID: 2102148-003DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-11	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653527 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.66	0.0030	0.5000	0.1531	100	70	130			
Chromium	0.51	0.0060	0.5000	0	101	70	130			

Sample ID: 2102148-003DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-11	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653528 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.64	0.0030	0.5000	0.1531	97.6	70	130	2.19	20	
Chromium	0.51	0.0060	0.5000	0	102	70	130	0.506	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 2102148-003DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-11	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653530 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	1.4	0.010	0.5000	0.9303	92.0	70	130			

Sample ID: 2102148-003DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-11	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653531 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	1.4	0.010	0.5000	0.9303	97.4	70	130	1.92	20	

Sample ID: 2102148-005DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-9	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653535 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0030	0.5000	0.01801	98.1	70	130			
Chromium	0.59	0.0060	0.5000	0	118	70	130			
Manganese	0.90	0.0020	0.5000	0.4320	94.3	70	130			

Sample ID: 2102148-005DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-9	Batch ID: 57977	RunNo: 75157								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653536 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0030	0.5000	0.01801	101	70	130	2.88	20	
Chromium	0.59	0.0060	0.5000	0	117	70	130	0.957	20	
Manganese	0.92	0.0020	0.5000	0.4320	98.0	70	130	2.06	20	

Sample ID: 2102148-005DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-9	Batch ID: 57977	RunNo: 75197								
Prep Date: 2/8/2021	Analysis Date: 2/10/2021	SeqNo: 2655199 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.4	0.25	0.5000	1.639	161	70	130			S

Sample ID: 2102148-005DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GBR-9	Batch ID: 57977	RunNo: 75197								
Prep Date: 2/8/2021	Analysis Date: 2/10/2021	SeqNo: 2655200 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	2.4	0.25	0.5000	1.639	153	70	130	1.63	20	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57977	SampType: MBLK	TestCode: EPA 200.8: Metals								
Client ID: PBW	Batch ID: 57977	RunNo: 75170								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654055	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-57977	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 57977	RunNo: 75170								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654056	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	103	50	150			
Beryllium	ND	0.0010	0.001000	0	89.3	50	150			
Cadmium	0.00055	0.00050	0.0005000	0	109	50	150			
Lead	0.00052	0.00050	0.0005000	0	103	50	150			
Nickel	ND	0.0010	0.001000	0	92.3	50	150			
Selenium	ND	0.0010	0.001000	0	76.5	50	150			
Silver	ND	0.00050	0.0005000	0	96.8	50	150			

Sample ID: MSLCS-57977	SampType: LCS	TestCode: EPA 200.8: Metals								
Client ID: LCSW	Batch ID: 57977	RunNo: 75170								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654057	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	99.5	85	115			
Beryllium	0.026	0.0010	0.02500	0	104	85	115			
Cadmium	0.013	0.00050	0.01250	0	101	85	115			
Lead	0.013	0.00050	0.01250	0	102	85	115			
Nickel	0.025	0.0010	0.02500	0	99.2	85	115			
Selenium	0.024	0.0010	0.02500	0	97.4	85	115			
Silver	0.013	0.00050	0.01250	0	104	85	115			
Thallium	0.013	0.00025	0.01250	0	101	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: MSLLCS(TL)-57977		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 57977		RunNo: 75170						
Prep Date: 2/8/2021		Analysis Date: 2/9/2021		SeqNo: 2654058		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00026	0.00025	0.0002500	0	105	50	150			

Sample ID: 2102148-006DMSLL		SampType: MS		TestCode: EPA 200.8: Metals						
Client ID: GBR-13		Batch ID: 57977		RunNo: 75170						
Prep Date: 2/8/2021		Analysis Date: 2/9/2021		SeqNo: 2654134		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.029	0.0010	0.02500	0.001824	110	70	130			
Beryllium	0.025	0.0010	0.02500	0	101	70	130			
Cadmium	0.012	0.00050	0.01250	.00008367	98.0	70	130			
Lead	0.020	0.00050	0.01250	0.004816	118	70	130			
Nickel	0.040	0.0010	0.02500	0.01069	118	70	130			
Silver	0.012	0.00050	0.01250	0	93.8	70	130			
Thallium	0.012	0.00025	0.01250	0	97.2	70	130			

Sample ID: 2102148-006DMSDL		SampType: MSD		TestCode: EPA 200.8: Metals						
Client ID: GBR-13		Batch ID: 57977		RunNo: 75170						
Prep Date: 2/8/2021		Analysis Date: 2/9/2021		SeqNo: 2654135		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.029	0.0010	0.02500	0.001824	108	70	130	1.19	20	
Beryllium	0.025	0.0010	0.02500	0	99.1	70	130	2.40	22	
Cadmium	0.013	0.00050	0.01250	.00008367	99.5	70	130	1.46	20	
Lead	0.019	0.00050	0.01250	0.004816	115	70	130	1.78	20	
Nickel	0.040	0.0010	0.02500	0.01069	118	70	130	0.0291	20	
Silver	0.012	0.00050	0.01250	0	95.7	70	130	1.93	20	
Thallium	0.012	0.00025	0.01250	0	96.7	70	130	0.462	20	

Sample ID: 2102148-006DMSLL		SampType: MS		TestCode: EPA 200.8: Metals						
Client ID: GBR-13		Batch ID: 57977		RunNo: 75322						
Prep Date: 2/8/2021		Analysis Date: 2/16/2021		SeqNo: 2662153		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0050	0.02500	0	14.9	70	130			S

Sample ID: 2102148-006DMSDL		SampType: MSD		TestCode: EPA 200.8: Metals						
Client ID: GBR-13		Batch ID: 57977		RunNo: 75322						
Prep Date: 2/8/2021		Analysis Date: 2/16/2021		SeqNo: 2662154		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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: 2102148-006DMSDL		SampType: MSD		TestCode: EPA 200.8: Metals						
Client ID: GBR-13		Batch ID: 57977		RunNo: 75322						
Prep Date: 2/8/2021		Analysis Date: 2/16/2021		SeqNo: 2662154		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0050	0.02500	0	16.1	70	130	0	20	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57968	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653912	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LL LCS-57968	SampType: LC SLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653913	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	74.4	50	150			

Sample ID: LCS-57968	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 57968	RunNo: 75166								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2653914	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0056	0.00020	0.005000	0	111	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75059	RunNo: 75059								
Prep Date:	Analysis Date: 2/3/2021	SeqNo: 2649611 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75059	RunNo: 75059								
Prep Date:	Analysis Date: 2/3/2021	SeqNo: 2649619 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	101	90	110			
Chloride	4.8	0.50	5.000	0	95.3	90	110			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.5	90	110			
Sulfate	9.7	0.50	10.00	0	96.8	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75089	RunNo: 75089								
Prep Date:	Analysis Date: 2/4/2021	SeqNo: 2650852 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75089	RunNo: 75089								
Prep Date:	Analysis Date: 2/4/2021	SeqNo: 2650853 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.4	0.50	10.00	0	94.4	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 100ng lcs2	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: A75169	RunNo: 75169								
Prep Date:	Analysis Date: 2/10/2021	SeqNo: 2654624	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	102	70	130			
Toluene	19	1.0	20.00	0	93.1	70	130			
Chlorobenzene	18	1.0	20.00	0	90.0	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	98.4	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	90.1	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	9.5		10.00		95.4	70	130			

Sample ID: 2102148-001ams	SampType: MS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: GBR-20	Batch ID: A75169	RunNo: 75169								
Prep Date:	Analysis Date: 2/10/2021	SeqNo: 2654629	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	110	5.0	100.0	14.47	99.0	70	130			
Toluene	93	5.0	100.0	0	92.6	70	130			
Chlorobenzene	91	5.0	100.0	0	90.9	70	130			
1,1-Dichloroethene	89	5.0	100.0	0	89.3	70	130			
Trichloroethene (TCE)	85	5.0	100.0	0	85.3	70	130			
Surr: 1,2-Dichloroethane-d4	49		50.00		98.5	70	130			
Surr: 4-Bromofluorobenzene	48		50.00		95.4	70	130			
Surr: Dibromofluoromethane	50		50.00		100	70	130			
Surr: Toluene-d8	48		50.00		95.4	70	130			

Sample ID: 2102148-001amsd	SampType: MSD	TestCode: EPA Method 8260B: VOLATILES								
Client ID: GBR-20	Batch ID: A75169	RunNo: 75169								
Prep Date:	Analysis Date: 2/10/2021	SeqNo: 2654630	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	110	5.0	100.0	14.47	100	70	130	0.970	20	
Toluene	95	5.0	100.0	0	95.3	70	130	2.82	20	
Chlorobenzene	92	5.0	100.0	0	91.9	70	130	1.12	20	
1,1-Dichloroethene	89	5.0	100.0	0	89.3	70	130	0.0672	20	
Trichloroethene (TCE)	84	5.0	100.0	0	83.9	70	130	1.67	20	
Surr: 1,2-Dichloroethane-d4	51		50.00		101	70	130	0	0	
Surr: 4-Bromofluorobenzene	52		50.00		105	70	130	0	0	
Surr: Dibromofluoromethane	52		50.00		105	70	130	0	0	
Surr: Toluene-d8	49		50.00		97.9	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A75169			RunNo: 75169						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2654653		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: A75169			RunNo: 75169						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2654653		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		105	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb-57966	SampType: MBLK	TestCode: EPA Method 8270SIM								
Client ID: PBW	Batch ID: 57966	RunNo: 75176								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654266 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.10								
2-Methylnaphthalene	ND	0.10								
Acenaphthylene	ND	0.10								
Acenaphthene	ND	0.10								
Fluorene	ND	0.10								
Phenanthrene	ND	0.10								
Anthracene	ND	0.10								
Fluoranthene	ND	0.20								
Pyrene	ND	0.20								
Benz(a)anthracene	ND	0.10								
Chrysene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.30								
Surr: Nitrobenzene-d5	3.4		4.000		84.5	26.3	112			
Surr: 2,4,6-Tribromophenol	20		8.000		247	27.7	118			S
Surr: 2-Fluorobiphenyl	2.3		4.000		57.5	21.1	110			
Surr: 4-Terphenyl-d14	4.4		4.000		110	17.6	167			

Sample ID: lcs-57966	SampType: LCS	TestCode: EPA Method 8270SIM								
Client ID: LCSW	Batch ID: 57966	RunNo: 75176								
Prep Date: 2/8/2021	Analysis Date: 2/9/2021	SeqNo: 2654267 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.2	0.10	2.000	0	60.0	18.5	83.4			
1-Methylnaphthalene	1.2	0.10	2.000	0	60.0	15.1	89.6			
2-Methylnaphthalene	1.2	0.10	2.000	0	60.0	15	90.6			
Acenaphthylene	1.2	0.10	2.000	0	60.0	18.2	95.3			
Acenaphthene	1.2	0.10	2.000	0	59.0	23.9	90.3			
Fluorene	1.2	0.10	2.000	0	59.0	16.8	106			
Phenanthrene	1.2	0.10	2.000	0	62.0	23.3	105			
Anthracene	1.3	0.10	2.000	0	63.0	15	112			
Fluoranthene	1.4	0.20	2.000	0	71.0	15.4	138			
Pyrene	1.3	0.20	2.000	0	67.0	15	128			
Benz(a)anthracene	1.6	0.10	2.000	0	80.0	38.7	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: lcs-57966	SampType: LCS			TestCode: EPA Method 8270SIM						
Client ID: LCSW	Batch ID: 57966			RunNo: 75176						
Prep Date: 2/8/2021	Analysis Date: 2/9/2021			SeqNo: 2654267			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chrysene	1.6	0.10	2.000	0	82.0	32.6	96.6			
Benzo(a)pyrene	1.5	0.070	2.000	0	73.0	24.5	123			
Dibenz(a,h)anthracene	1.5	0.10	2.000	0	74.0	17.8	118			
Benzo(g,h,i)perylene	1.6	0.10	2.000	0	79.0	22.2	110			
Indeno(1,2,3-cd)pyrene	2.5	0.30	2.000	0	125	20.8	115			S
Surr: Nitrobenzene-d5	5.0		5.000		99.2	26.3	112			
Surr: 2,4,6-Tribromophenol	12		10.00		117	27.7	118			
Surr: 2-Fluorobiphenyl	3.2		5.000		63.2	21.1	110			
Surr: 4-Terphenyl-d14	5.3		5.000		107	17.6	167			

Sample ID: lcsd-57966	SampType: LCSD			TestCode: EPA Method 8270SIM						
Client ID: LCSS02	Batch ID: 57966			RunNo: 75176						
Prep Date: 2/8/2021	Analysis Date: 2/9/2021			SeqNo: 2654268			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.98	0.10	2.000	0	49.0	18.5	83.4	20.2	20	R
1-Methylnaphthalene	1.0	0.10	2.000	0	50.0	15.1	89.6	18.2	20	
2-Methylnaphthalene	1.0	0.10	2.000	0	50.0	15	90.6	18.2	20	
Acenaphthylene	1.0	0.10	2.000	0	51.0	18.2	95.3	16.2	20	
Acenaphthene	0.98	0.10	2.000	0	49.0	23.9	90.3	18.5	20	
Fluorene	1.1	0.10	2.000	0	53.0	16.8	106	10.7	20	
Phenanthrene	1.1	0.10	2.000	0	55.0	23.3	105	12.0	20	
Anthracene	1.1	0.10	2.000	0	56.0	15	112	11.8	20	
Fluoranthene	1.3	0.20	2.000	0	66.0	15.4	138	7.30	20	
Pyrene	1.2	0.20	2.000	0	62.0	15	128	7.75	20	
Benz(a)anthracene	1.4	0.10	2.000	0	72.0	38.7	111	10.5	20	
Chrysene	1.5	0.10	2.000	0	74.0	32.6	96.6	10.3	20	
Benzo(a)pyrene	1.3	0.070	2.000	0	66.0	24.5	123	10.1	20	
Dibenz(a,h)anthracene	1.3	0.10	2.000	0	67.0	17.8	118	9.93	20	
Benzo(g,h,i)perylene	1.4	0.10	2.000	0	71.0	22.2	110	10.7	20	
Indeno(1,2,3-cd)pyrene	1.2	0.30	2.000	0	60.0	20.8	115	70.3	20	R
Surr: Nitrobenzene-d5	4.1		5.000		82.0	26.3	112	0	0	
Surr: 2,4,6-Tribromophenol	11		10.00		106	27.7	118	0	0	
Surr: 2-Fluorobiphenyl	2.4		5.000		48.8	21.1	110	0	0	
Surr: 4-Terphenyl-d14	4.7		5.000		94.0	17.6	167	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102148

24-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MB-57947	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 57947	RunNo: 75149								
Prep Date: 2/5/2021	Analysis Date: 2/9/2021	SeqNo: 2653357		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-57947	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 57947	RunNo: 75149								
Prep Date: 2/5/2021	Analysis Date: 2/9/2021	SeqNo: 2653358		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2102148

RcptNo: 1

Received By: Juan Rojas 2/3/2021 7:30:00 AM

Completed By: Desiree Dominguez 2/3/2021 9:38:14 AM

Reviewed By: *cc* 2/5/21
300 checked by: SPA 2.3.21

Chain of Custody

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

Log In

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

of preserved
bottles checked
for pH: 14
(≤ 2 or >12 unless noted)

Adjusted? YES

Checked by: DAD 2/5/21

Labeled unpres NO₃: DAD 2/3/21

Special Handling (if applicable)

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

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

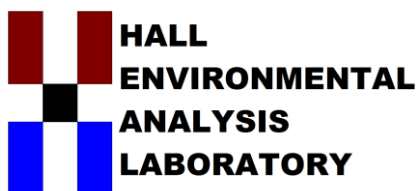
16. Additional remarks: For metals analysis added ~ 0.5 mL HNO₃ to samples 001D 3067D

17. Cooler Information For pH/2. - DAD 2/5/21

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.4	Good	Yes			

Recommended Analyte List for GBR Site-Wide Sampling Event	
VOCs Method 8260	PAHs Method 8270
benzene	naphthalene
toluene	1-methylnaphthalene
ethylbenzene	2-methylnaphthalene
methyl tert-butyl ether (MTBE)	acenaphthylene
1,2,4-trimethylbenzene	acenaphthene
1,3,5-trimethylbenzene	fluorene
1,2-dichloroethane (EDC)	phenanthrene
1,2-dibromoethane (EDB)	anthracene
naphthalene	fluoranthene
1-methylnaphthalene	pyrene
2-methylnaphthalene	benz(a)anthracene
acetone	chrysene
bromobenzene	benzo(b)fluoranthene
bromodichloromethane	benzo(k)fluoranthene
bromoform	benzo(a)pyrene
bromomethane	dibenz(a,h)anthracene
2-butanone	benzo(g,h,i)perylene
carbon disulfide	indeno(1,2,3-cd)pyrene
carbon tetrachloride	Anions Method 300.0
chlorobenzene	chloride
chloroethane	sulfate
chloroform	fluoride
chloromethane	nitrate + nitrite as N
2-chlorotoluene	Metals Method 200.7
4-chlorotoluene	barium*
cis-1,2-dichloroethene (cis-1,2-DCE)	beryllium
cis-1,3-dichloropropene	cadmium*
1,2-dibromo-3-chloropropane	chromium*
dibromochloromethane	iron
dibromomethane	manganese
1,2-dichlorobenzene	nickel
1,3-dichlorobenzene	silver*
1,4-dichlorobenzene	Metals Method 200.8
dichlorodifluoromethane	arsenic*
1,1-dichloroethane	lead*
1,1-dichloroethene (1,1-DCE)	selenium*
1,2-dichloropropane	thallium
1,3-dichloropropane	Mercury
2,2-dichloropropane	Mercury*
1,1-dichloropropene	Total Dissolved Solids Method M2540C
hexachlorobutadiene	total dissolved solids
2-hexanone	
isopropylbenzene	
4-isopropyltoluene	
4-methyl-2-pentanone	
methylene chloride	
n-butylbenzene	
n-propylbenzene	
sec-butylbenzene	
styrene	
tert-butylbenzene	
1,1,1,2-tetrachloroethane	
1,1,2,2-tetrachloroethane	
tetrachloroethene (PCE)	
trans-1,2-dichloroethene (trans-1,2-DCE)	
trans-1,3-dichloropropene	
1,2,3-trichlorobenzene	
1,2,4-trichlorobenzene	
1,1,1-trichloroethane	
1,1,2-trichloroethane	
trichloroethene (TCE)	
trichlorofluoromethane	
1,2,3-trichloropropane	
vinyl chloride	
xylene, total	

* - asterisks denotes RCRA 8 Metal



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

February 24, 2021

Gregory McCartney
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: 2021 Giant Former Refinery

OrderNo.: 2102310

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 11 sample(s) on 2/5/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-9

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:00:00 AM

Lab ID: 2102310-001

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/11/2021 12:18:13 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:18:13 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:18:13 PM	57999
Lead	ND	0.00050		mg/L	1	2/11/2021 12:18:13 PM	57999
Nickel	0.0027	0.0010		mg/L	1	2/11/2021 12:18:13 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:18:13 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:18:13 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:18:13 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	0.50		mg/L	5	2/5/2021 4:53:20 PM	R75132
Chloride	59	2.5		mg/L	5	2/5/2021 4:53:20 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 4:53:20 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 4:53:20 PM	R75132
Sulfate	1900	25	*	mg/L	50	2/9/2021 11:38:14 AM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3260	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.034	0.0030		mg/L	1	2/10/2021 9:21:27 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 12:19:42 PM	57999
Iron	1.9	0.25	*	mg/L	5	2/10/2021 9:22:47 AM	57999
Manganese	0.53	0.0020	*	mg/L	1	2/10/2021 9:21:27 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:32:13 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Acenaphthene	0.18	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Fluorene	0.38	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Anthracene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Fluoranthene	ND	0.20		µg/L	1	2/16/2021 4:39:00 PM	57991
Pyrene	ND	0.20		µg/L	1	2/16/2021 4:39:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 4:39:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-9

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:00:00 AM

Lab ID: 2102310-001

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 4:39:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 4:39:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 4:39:00 PM	57991
Surr: Nitrobenzene-d5	5.00	26.3-112	S	%Rec	1	2/16/2021 4:39:00 PM	57991
Surr: 2-Fluorobiphenyl	40.5	21.1-110		%Rec	1	2/16/2021 4:39:00 PM	57991
Surr: 4-Terphenyl-d14	73.0	17.6-167		%Rec	1	2/16/2021 4:39:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Toluene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Naphthalene	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Acetone	ND	10		µg/L	1	2/10/2021 7:19:22 PM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Bromoform	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Bromomethane	ND	3.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
2-Butanone	ND	10		µg/L	1	2/10/2021 7:19:22 PM	R75222
Carbon disulfide	ND	10		µg/L	1	2/10/2021 7:19:22 PM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Chloroethane	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Chloroform	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Chloromethane	ND	3.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-9

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:00:00 AM

Lab ID: 2102310-001

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
2-Hexanone	ND	10		µg/L	1	2/10/2021 7:19:22 PM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 7:19:22 PM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Styrene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
tert-Butylbenzene	2.0	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 7:19:22 PM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 7:19:22 PM	R75222
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	2/10/2021 7:19:22 PM	R75222
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	2/10/2021 7:19:22 PM	R75222
Surr: Dibromofluoromethane	114	70-130		%Rec	1	2/10/2021 7:19:22 PM	R75222
Surr: Toluene-d8	102	70-130		%Rec	1	2/10/2021 7:19:22 PM	R75222

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

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

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-2

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:35:00 AM

Lab ID: 2102310-002

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.023	0.0010	*	mg/L	1	2/11/2021 12:20:19 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:20:19 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:20:19 PM	57999
Lead	ND	0.00050		mg/L	1	2/11/2021 12:20:19 PM	57999
Nickel	0.26	0.020		mg/L	20	2/11/2021 3:45:09 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:20:19 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:20:19 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:20:19 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.59	0.50		mg/L	5	2/5/2021 5:19:04 PM	R75132
Chloride	100	10		mg/L	20	2/5/2021 5:31:56 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 5:19:04 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 5:19:04 PM	R75132
Sulfate	660	10	*	mg/L	20	2/5/2021 5:31:56 PM	R75132
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1880	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.066	0.0030		mg/L	1	2/10/2021 9:29:13 AM	57999
Chromium	0.018	0.0060		mg/L	1	2/15/2021 12:21:52 PM	57999
Iron	22	2.5	*	mg/L	50	2/15/2021 12:24:00 PM	57999
Manganese	3.3	0.010	*	mg/L	5	2/10/2021 9:30:35 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:34:37 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Acenaphthene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Fluorene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Anthracene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Fluoranthene	ND	0.20		µg/L	1	2/16/2021 5:23:00 PM	57991
Pyrene	ND	0.20		µg/L	1	2/16/2021 5:23:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 5:23:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-2

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:35:00 AM

Lab ID: 2102310-002

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 5:23:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 5:23:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 5:23:00 PM	57991
Surr: Nitrobenzene-d5	77.0	26.3-112		%Rec	1	2/16/2021 5:23:00 PM	57991
Surr: 2-Fluorobiphenyl	69.0	21.1-110		%Rec	1	2/16/2021 5:23:00 PM	57991
Surr: 4-Terphenyl-d14	112	17.6-167		%Rec	1	2/16/2021 5:23:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Toluene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Naphthalene	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Acetone	ND	10		µg/L	1	2/10/2021 7:46:29 PM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Bromoform	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Bromomethane	ND	3.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
2-Butanone	ND	10		µg/L	1	2/10/2021 7:46:29 PM	R75222
Carbon disulfide	ND	10		µg/L	1	2/10/2021 7:46:29 PM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Chloroethane	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Chloroform	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Chloromethane	ND	3.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-2

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:35:00 AM

Lab ID: 2102310-002

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
2-Hexanone	ND	10		µg/L	1	2/10/2021 7:46:29 PM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 7:46:29 PM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Styrene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
tert-Butylbenzene	1.6	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 7:46:29 PM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 7:46:29 PM	R75222
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	2/10/2021 7:46:29 PM	R75222
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/10/2021 7:46:29 PM	R75222
Surr: Dibromofluoromethane	113	70-130		%Rec	1	2/10/2021 7:46:29 PM	R75222
Surr: Toluene-d8	97.1	70-130		%Rec	1	2/10/2021 7:46:29 PM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-3

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:55:00 AM

Lab ID: 2102310-003

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0013	0.0010		mg/L	1	2/11/2021 12:22:26 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:22:26 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:22:26 PM	57999
Lead	ND	0.00050		mg/L	1	2/11/2021 12:22:26 PM	57999
Nickel	0.0074	0.0010		mg/L	1	2/11/2021 12:22:26 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:22:26 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:22:26 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:22:26 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.0	0.50		mg/L	5	2/5/2021 5:44:49 PM	R75132
Chloride	110	10		mg/L	20	2/5/2021 5:57:41 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 5:44:49 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 5:44:49 PM	R75132
Sulfate	440	10	*	mg/L	20	2/5/2021 5:57:41 PM	R75132
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1860	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.21	0.0030		mg/L	1	2/10/2021 9:31:55 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 12:26:12 PM	57999
Iron	3.8	0.25	*	mg/L	5	2/10/2021 9:33:15 AM	57999
Manganese	1.8	0.010	*	mg/L	5	2/10/2021 9:33:15 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:36:58 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	0.12	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Acenaphthene	0.36	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Fluorene	1.5	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Anthracene	0.34	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Fluoranthene	0.32	0.20		µg/L	1	2/16/2021 6:07:00 PM	57991
Pyrene	0.24	0.20		µg/L	1	2/16/2021 6:07:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 6:07:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-3

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:55:00 AM

Lab ID: 2102310-003

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 6:07:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 6:07:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 6:07:00 PM	57991
Surr: Nitrobenzene-d5	49.0	26.3-112		%Rec	1	2/16/2021 6:07:00 PM	57991
Surr: 2-Fluorobiphenyl	40.0	21.1-110		%Rec	1	2/16/2021 6:07:00 PM	57991
Surr: 4-Terphenyl-d14	81.0	17.6-167		%Rec	1	2/16/2021 6:07:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Toluene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Naphthalene	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Acetone	ND	10		µg/L	1	2/10/2021 8:13:41 PM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Bromoform	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Bromomethane	ND	3.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
2-Butanone	ND	10		µg/L	1	2/10/2021 8:13:41 PM	R75222
Carbon disulfide	ND	10		µg/L	1	2/10/2021 8:13:41 PM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Chloroethane	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Chloroform	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Chloromethane	ND	3.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-3

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:55:00 AM

Lab ID: 2102310-003

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
2-Hexanone	ND	10		µg/L	1	2/10/2021 8:13:41 PM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 8:13:41 PM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Styrene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
tert-Butylbenzene	1.8	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 8:13:41 PM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 8:13:41 PM	R75222
Surr: 1,2-Dichloroethane-d4	112	70-130		%Rec	1	2/10/2021 8:13:41 PM	R75222
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/10/2021 8:13:41 PM	R75222
Surr: Dibromofluoromethane	116	70-130		%Rec	1	2/10/2021 8:13:41 PM	R75222
Surr: Toluene-d8	101	70-130		%Rec	1	2/10/2021 8:13:41 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-4

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:20:00 AM

Lab ID: 2102310-004

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0028	0.0010		mg/L	1	2/11/2021 12:24:32 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:24:32 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:24:32 PM	57999
Lead	0.00098	0.00050		mg/L	1	2/11/2021 12:24:32 PM	57999
Nickel	0.016	0.0010		mg/L	1	2/11/2021 12:24:32 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:24:32 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:24:32 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:24:32 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.1	0.50		mg/L	5	2/5/2021 6:10:33 PM	R75132
Chloride	120	10		mg/L	20	2/5/2021 6:23:25 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 6:10:33 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 6:10:33 PM	R75132
Sulfate	1300	25	*	mg/L	50	2/9/2021 11:51:07 AM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2790	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.024	0.0030		mg/L	1	2/10/2021 9:34:37 AM	57999
Chromium	0.013	0.0060		mg/L	1	2/15/2021 12:28:20 PM	57999
Iron	3.3	0.25	*	mg/L	5	2/15/2021 12:43:09 PM	57999
Manganese	4.4	0.010	*	mg/L	5	2/10/2021 9:38:37 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:39:19 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
1-Methylnaphthalene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
2-Methylnaphthalene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Acenaphthylene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Acenaphthene	3.3	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Fluorene	9.0	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Phenanthrene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Anthracene	1.5	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Fluoranthene	ND	1.0		µg/L	1	2/16/2021 6:51:00 PM	57991
Pyrene	1.1	1.0		µg/L	1	2/16/2021 6:51:00 PM	57991
Benz(a)anthracene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Chrysene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Benzo(b)fluoranthene	ND	1.0		µg/L	1	2/16/2021 6:51:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-4

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:20:00 AM

Lab ID: 2102310-004

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	1.0		µg/L	1	2/16/2021 6:51:00 PM	57991
Benzo(a)pyrene	ND	0.35		µg/L	1	2/16/2021 6:51:00 PM	57991
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	2/16/2021 6:51:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	1.5		µg/L	1	2/16/2021 6:51:00 PM	57991
Surr: Nitrobenzene-d5	86.5	26.3-112		%Rec	1	2/16/2021 6:51:00 PM	57991
Surr: 2-Fluorobiphenyl	72.0	21.1-110		%Rec	1	2/16/2021 6:51:00 PM	57991
Surr: 4-Terphenyl-d14	105	17.6-167		%Rec	1	2/16/2021 6:51:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Toluene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Ethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2,4-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,3,5-Trimethylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2-Dichloroethane (EDC)	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2-Dibromoethane (EDB)	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Naphthalene	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
2-Methylnaphthalene	ND	20	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Acetone	ND	50	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Bromobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Bromodichloromethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Bromoform	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Bromomethane	ND	15	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
2-Butanone	ND	50	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Carbon disulfide	ND	50	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Carbon Tetrachloride	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Chlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Chloroethane	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Chloroform	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Chloromethane	ND	15	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
2-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
4-Chlorotoluene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
cis-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
cis-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2-Dibromo-3-chloropropane	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Dibromochloromethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Dibromomethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-4

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:20:00 AM

Lab ID: 2102310-004

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,3-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,4-Dichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Dichlorodifluoromethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1-Dichloroethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1-Dichloroethene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,3-Dichloropropane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
2,2-Dichloropropane	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Hexachlorobutadiene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
2-Hexanone	ND	50	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Isopropylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
4-Isopropyltoluene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
4-Methyl-2-pentanone	ND	50	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Methylene Chloride	ND	15	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
n-Butylbenzene	ND	15	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
n-Propylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
sec-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Styrene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
tert-Butylbenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1,1,2-Tetrachloroethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1,2,2-Tetrachloroethane	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Tetrachloroethene (PCE)	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
trans-1,2-DCE	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
trans-1,3-Dichloropropene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2,3-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2,4-Trichlorobenzene	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1,1-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,1,2-Trichloroethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Trichloroethene (TCE)	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Trichlorofluoromethane	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
1,2,3-Trichloropropane	ND	10	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Vinyl chloride	ND	5.0	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Xylenes, Total	ND	7.5	D	µg/L	5	2/10/2021 8:40:55 PM	R75222
Surr: 1,2-Dichloroethane-d4	98.0	70-130	D	%Rec	5	2/10/2021 8:40:55 PM	R75222
Surr: 4-Bromofluorobenzene	97.2	70-130	D	%Rec	5	2/10/2021 8:40:55 PM	R75222
Surr: Dibromofluoromethane	98.6	70-130	D	%Rec	5	2/10/2021 8:40:55 PM	R75222
Surr: Toluene-d8	99.6	70-130	D	%Rec	5	2/10/2021 8:40:55 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-5

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:45:00 AM

Lab ID: 2102310-005

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0028	0.0010		mg/L	1	2/11/2021 12:26:38 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:26:38 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:26:38 PM	57999
Lead	0.0015	0.00050		mg/L	1	2/11/2021 12:26:38 PM	57999
Nickel	0.015	0.0010		mg/L	1	2/11/2021 12:26:38 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:26:38 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:26:38 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:26:38 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.0	0.50		mg/L	5	2/5/2021 6:36:17 PM	R75132
Chloride	91	2.5		mg/L	5	2/5/2021 6:36:17 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 6:36:17 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 6:36:17 PM	R75132
Sulfate	1500	25	*	mg/L	50	2/9/2021 12:03:59 PM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2790	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.048	0.0030		mg/L	1	2/10/2021 9:47:49 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 12:51:26 PM	57999
Iron	1.8	0.25	*	mg/L	5	2/10/2021 9:49:08 AM	57999
Manganese	5.7	0.020	*	mg/L	10	2/15/2021 12:53:31 PM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:46:24 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Acenaphthene	0.22	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Fluorene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Anthracene	0.38	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Fluoranthene	ND	0.20		µg/L	1	2/16/2021 7:34:00 PM	57991
Pyrene	0.28	0.20		µg/L	1	2/16/2021 7:34:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 7:34:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-5

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:45:00 AM

Lab ID: 2102310-005

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 7:34:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 7:34:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 7:34:00 PM	57991
Surr: Nitrobenzene-d5	70.5	26.3-112		%Rec	1	2/16/2021 7:34:00 PM	57991
Surr: 2-Fluorobiphenyl	56.5	21.1-110		%Rec	1	2/16/2021 7:34:00 PM	57991
Surr: 4-Terphenyl-d14	109	17.6-167		%Rec	1	2/16/2021 7:34:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Toluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Naphthalene	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Acetone	23	10		µg/L	1	2/10/2021 9:08:11 PM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Bromoform	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Bromomethane	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
2-Butanone	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222
Carbon disulfide	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Chloroethane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Chloroform	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Chloromethane	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-5

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:45:00 AM

Lab ID: 2102310-005

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
2-Hexanone	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Styrene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 9:08:11 PM	R75222
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	2/10/2021 9:08:11 PM	R75222
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	2/10/2021 9:08:11 PM	R75222
Surr: Dibromofluoromethane	125	70-130		%Rec	1	2/10/2021 9:08:11 PM	R75222
Surr: Toluene-d8	103	70-130		%Rec	1	2/10/2021 9:08:11 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-6

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:05:00 PM

Lab ID: 2102310-006

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/11/2021 12:28:46 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:28:46 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:28:46 PM	57999
Lead	ND	0.00050		mg/L	1	2/11/2021 12:28:46 PM	57999
Nickel	0.0058	0.0010		mg/L	1	2/11/2021 12:28:46 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:28:46 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:28:46 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:28:46 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.93	0.50		mg/L	5	2/5/2021 7:28:25 PM	R75132
Chloride	97	2.5		mg/L	5	2/5/2021 7:28:25 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 7:28:25 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 7:28:25 PM	R75132
Sulfate	1500	25	*	mg/L	50	2/9/2021 12:16:52 PM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2570	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.025	0.0030		mg/L	1	2/10/2021 9:50:44 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 12:56:01 PM	57999
Iron	1.6	0.25	*	mg/L	5	2/10/2021 9:51:58 AM	57999
Manganese	2.1	0.010	*	mg/L	5	2/10/2021 9:51:58 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 11:34:24 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Acenaphthene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Fluorene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Anthracene	0.64	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Fluoranthene	0.38	0.20		µg/L	1	2/16/2021 8:17:00 PM	57991
Pyrene	0.42	0.20		µg/L	1	2/16/2021 8:17:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 8:17:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-6

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:05:00 PM

Lab ID: 2102310-006

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 8:17:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 8:17:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 8:17:00 PM	57991
Surr: Nitrobenzene-d5	75.5	26.3-112		%Rec	1	2/16/2021 8:17:00 PM	57991
Surr: 2-Fluorobiphenyl	60.5	21.1-110		%Rec	1	2/16/2021 8:17:00 PM	57991
Surr: 4-Terphenyl-d14	103	17.6-167		%Rec	1	2/16/2021 8:17:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Toluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Naphthalene	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Acetone	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Bromoform	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Bromomethane	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
2-Butanone	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222
Carbon disulfide	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Chloroethane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Chloroform	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Chloromethane	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-6

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:05:00 PM

Lab ID: 2102310-006

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
2-Hexanone	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Styrene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/10/2021 9:35:25 PM	R75222
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/10/2021 9:35:25 PM	R75222
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/10/2021 9:35:25 PM	R75222
Surr: Dibromofluoromethane	108	70-130		%Rec	1	2/10/2021 9:35:25 PM	R75222
Surr: Toluene-d8	100	70-130		%Rec	1	2/10/2021 9:35:25 PM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-12

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:30:00 PM

Lab ID: 2102310-007

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.014	0.0010	*	mg/L	1	2/11/2021 12:30:51 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:30:51 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:30:51 PM	57999
Lead	0.0012	0.00050		mg/L	1	2/11/2021 12:30:51 PM	57999
Nickel	0.0070	0.0010		mg/L	1	2/11/2021 12:30:51 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:30:51 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:30:51 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:30:51 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.74	0.50		mg/L	5	2/5/2021 7:53:38 PM	R75132
Chloride	230	10		mg/L	20	2/5/2021 8:06:30 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 7:53:38 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 7:53:38 PM	R75132
Sulfate	500	10	*	mg/L	20	2/5/2021 8:06:30 PM	R75132
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	1880	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.087	0.0030		mg/L	1	2/10/2021 9:53:27 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 12:58:12 PM	57999
Iron	14	1.0	*	mg/L	20	2/15/2021 1:00:21 PM	57999
Manganese	0.47	0.0020	*	mg/L	1	2/10/2021 9:53:27 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:53:29 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	0.24	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
1-Methylnaphthalene	0.18	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Acenaphthene	3.0	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Fluorene	1.3	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Anthracene	0.46	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Fluoranthene	0.34	0.20		µg/L	1	2/16/2021 9:57:00 PM	57991
Pyrene	0.30	0.20		µg/L	1	2/16/2021 9:57:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 9:57:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-12

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:30:00 PM

Lab ID: 2102310-007

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 9:57:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 9:57:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 9:57:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 9:57:00 PM	57991
Surr: Nitrobenzene-d5	79.0	26.3-112		%Rec	1	2/16/2021 9:57:00 PM	57991
Surr: 2-Fluorobiphenyl	62.0	21.1-110		%Rec	1	2/16/2021 9:57:00 PM	57991
Surr: 4-Terphenyl-d14	99.0	17.6-167		%Rec	1	2/16/2021 9:57:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: RAA
Benzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Toluene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Ethylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Naphthalene	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
2-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Acetone	ND	10		µg/L	1	2/11/2021 7:37:02 PM	R75246
Bromobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Bromodichloromethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Bromoform	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Bromomethane	ND	3.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
2-Butanone	ND	10		µg/L	1	2/11/2021 7:37:02 PM	R75246
Carbon disulfide	ND	10		µg/L	1	2/11/2021 7:37:02 PM	R75246
Carbon Tetrachloride	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Chlorobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Chloroethane	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Chloroform	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Chloromethane	ND	3.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
2-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
4-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
cis-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Dibromochloromethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Dibromomethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246

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

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

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-12

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:30:00 PM

Lab ID: 2102310-007

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: RAA
1,2-Dichlorobenzene	1.2	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1-Dichloroethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1-Dichloroethene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,3-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
2,2-Dichloropropane	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Hexachlorobutadiene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
2-Hexanone	ND	10		µg/L	1	2/11/2021 7:37:02 PM	R75246
Isopropylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
4-Isopropyltoluene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
4-Methyl-2-pentanone	ND	10		µg/L	1	2/11/2021 7:37:02 PM	R75246
Methylene Chloride	ND	3.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
n-Butylbenzene	ND	3.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
n-Propylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
sec-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Styrene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
tert-Butylbenzene	1.7	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
trans-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Trichlorofluoromethane	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Vinyl chloride	ND	1.0		µg/L	1	2/11/2021 7:37:02 PM	R75246
Xylenes, Total	ND	1.5		µg/L	1	2/11/2021 7:37:02 PM	R75246
Surr: 1,2-Dichloroethane-d4	99.5	70-130		%Rec	1	2/11/2021 7:37:02 PM	R75246
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	2/11/2021 7:37:02 PM	R75246
Surr: Dibromofluoromethane	104	70-130		%Rec	1	2/11/2021 7:37:02 PM	R75246
Surr: Toluene-d8	103	70-130		%Rec	1	2/11/2021 7:37:02 PM	R75246

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-13

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:33:00 PM

Lab ID: 2102310-008

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/11/2021 12:37:12 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:37:12 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:37:12 PM	57999
Lead	0.00059	0.00050		mg/L	1	2/11/2021 12:37:12 PM	57999
Nickel	0.015	0.0010		mg/L	1	2/11/2021 12:37:12 PM	57999
Selenium	0.017	0.0010		mg/L	1	2/11/2021 3:49:22 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:37:12 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:37:12 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.85	0.10		mg/L	1	2/5/2021 8:19:23 PM	R75132
Chloride	220	10		mg/L	20	2/5/2021 8:32:16 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	2/5/2021 8:19:23 PM	R75132
Nitrogen, Nitrate (As N)	1.3	0.10		mg/L	1	2/5/2021 8:19:23 PM	R75132
Sulfate	1900	25	*	mg/L	50	2/9/2021 12:29:43 PM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3340	20.0	*	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.0082	0.0030		mg/L	1	2/10/2021 9:55:58 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 1:09:38 PM	57999
Iron	0.32	0.050	*	mg/L	1	2/10/2021 9:55:58 AM	57999
Manganese	1.1	0.010	*	mg/L	5	2/10/2021 9:57:35 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:55:52 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Acenaphthene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Fluorene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Anthracene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Fluoranthene	ND	0.20		µg/L	1	2/16/2021 10:41:00 PM	57991
Pyrene	ND	0.20		µg/L	1	2/16/2021 10:41:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 10:41:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-13

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:33:00 PM

Lab ID: 2102310-008

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 10:41:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 10:41:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 10:41:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 10:41:00 PM	57991
Surr: Nitrobenzene-d5	74.5	26.3-112		%Rec	1	2/16/2021 10:41:00 PM	57991
Surr: 2-Fluorobiphenyl	61.0	21.1-110		%Rec	1	2/16/2021 10:41:00 PM	57991
Surr: 4-Terphenyl-d14	102	17.6-167		%Rec	1	2/16/2021 10:41:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Toluene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Naphthalene	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Acetone	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Bromoform	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Bromomethane	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
2-Butanone	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222
Carbon disulfide	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Chloroethane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Chloroform	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Chloromethane	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-13

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:33:00 PM

Lab ID: 2102310-008

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
2-Hexanone	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Styrene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/11/2021 12:45:43 AM	R75222
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	2/11/2021 12:45:43 AM	R75222
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	2/11/2021 12:45:43 AM	R75222
Surr: Dibromofluoromethane	119	70-130		%Rec	1	2/11/2021 12:45:43 AM	R75222
Surr: Toluene-d8	102	70-130		%Rec	1	2/11/2021 12:45:43 AM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-11

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:45:00 PM

Lab ID: 2102310-009

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/11/2021 12:39:18 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:39:18 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:39:18 PM	57999
Lead	0.0024	0.00050		mg/L	1	2/11/2021 12:39:18 PM	57999
Nickel	0.0012	0.0010		mg/L	1	2/11/2021 12:39:18 PM	57999
Selenium	0.0020	0.0010		mg/L	1	2/11/2021 3:55:41 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:39:18 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:39:18 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.3	0.50		mg/L	5	2/5/2021 8:45:08 PM	R75132
Chloride	29	2.5		mg/L	5	2/5/2021 8:45:08 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 8:45:08 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 8:45:08 PM	R75132
Sulfate	2400	50	*	mg/L	100	2/9/2021 12:42:36 PM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3880	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.017	0.0030		mg/L	1	2/10/2021 9:59:10 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 1:11:51 PM	57999
Iron	5.9	0.50	*	mg/L	10	2/15/2021 1:14:01 PM	57999
Manganese	2.4	0.010	*	mg/L	5	2/10/2021 10:00:30 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 10:58:17 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Acenaphthene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Fluorene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Phenanthrene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Anthracene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Fluoranthene	ND	0.20		µg/L	1	2/16/2021 11:24:00 PM	57991
Pyrene	ND	0.20		µg/L	1	2/16/2021 11:24:00 PM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Chrysene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/16/2021 11:24:00 PM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-11

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:45:00 PM

Lab ID: 2102310-009

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/16/2021 11:24:00 PM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/16/2021 11:24:00 PM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 11:24:00 PM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/16/2021 11:24:00 PM	57991
Surr: Nitrobenzene-d5	58.0	26.3-112		%Rec	1	2/16/2021 11:24:00 PM	57991
Surr: 2-Fluorobiphenyl	50.5	21.1-110		%Rec	1	2/16/2021 11:24:00 PM	57991
Surr: 4-Terphenyl-d14	106	17.6-167		%Rec	1	2/16/2021 11:24:00 PM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Toluene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Naphthalene	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Acetone	ND	10		µg/L	1	2/11/2021 1:12:57 AM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Bromoform	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Bromomethane	ND	3.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
2-Butanone	ND	10		µg/L	1	2/11/2021 1:12:57 AM	R75222
Carbon disulfide	ND	10		µg/L	1	2/11/2021 1:12:57 AM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Chloroethane	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Chloroform	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Chloromethane	ND	3.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-11

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 12:45:00 PM

Lab ID: 2102310-009

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
2-Hexanone	ND	10		µg/L	1	2/11/2021 1:12:57 AM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/11/2021 1:12:57 AM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Styrene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/11/2021 1:12:57 AM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/11/2021 1:12:57 AM	R75222
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	2/11/2021 1:12:57 AM	R75222
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	2/11/2021 1:12:57 AM	R75222
Surr: Dibromofluoromethane	112	70-130		%Rec	1	2/11/2021 1:12:57 AM	R75222
Surr: Toluene-d8	102	70-130		%Rec	1	2/11/2021 1:12:57 AM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-10

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 1:15:00 PM

Lab ID: 2102310-010

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	2/11/2021 12:41:24 PM	57999
Beryllium	ND	0.0010		mg/L	1	2/11/2021 12:41:24 PM	57999
Cadmium	ND	0.00050		mg/L	1	2/11/2021 12:41:24 PM	57999
Lead	0.0015	0.00050		mg/L	1	2/11/2021 12:41:24 PM	57999
Nickel	0.0044	0.0010		mg/L	1	2/11/2021 12:41:24 PM	57999
Selenium	ND	0.0010		mg/L	1	2/11/2021 12:41:24 PM	57999
Silver	ND	0.00050		mg/L	1	2/11/2021 12:41:24 PM	57999
Thallium	ND	0.00025		mg/L	1	2/11/2021 12:41:24 PM	57999
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.1	0.50		mg/L	5	2/5/2021 11:58:10 PM	R75132
Chloride	51	2.5		mg/L	5	2/5/2021 11:58:10 PM	R75132
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	2/5/2021 11:58:10 PM	R75132
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	2/5/2021 11:58:10 PM	R75132
Sulfate	2200	50	*	mg/L	100	2/9/2021 12:55:28 PM	R75187
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3460	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.017	0.0030		mg/L	1	2/10/2021 10:07:58 AM	57999
Chromium	ND	0.0060		mg/L	1	2/15/2021 1:16:09 PM	57999
Iron	1.8	0.25	*	mg/L	5	2/10/2021 10:09:18 AM	57999
Manganese	1.0	0.010	*	mg/L	5	2/10/2021 10:09:18 AM	57999
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	2/12/2021 11:00:42 AM	58036
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
1-Methylnaphthalene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
2-Methylnaphthalene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Acenaphthylene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Acenaphthene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Fluorene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Phenanthrene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Anthracene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Fluoranthene	ND	0.20		µg/L	1	2/17/2021 12:08:00 AM	57991
Pyrene	0.22	0.20		µg/L	1	2/17/2021 12:08:00 AM	57991
Benz(a)anthracene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Chrysene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Benzo(b)fluoranthene	ND	0.20		µg/L	1	2/17/2021 12:08:00 AM	57991

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-10

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 1:15:00 PM

Lab ID: 2102310-010

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.20		µg/L	1	2/17/2021 12:08:00 AM	57991
Benzo(a)pyrene	ND	0.070		µg/L	1	2/17/2021 12:08:00 AM	57991
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	2/17/2021 12:08:00 AM	57991
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	2/17/2021 12:08:00 AM	57991
Surr: Nitrobenzene-d5	65.0	26.3-112		%Rec	1	2/17/2021 12:08:00 AM	57991
Surr: 2-Fluorobiphenyl	54.5	21.1-110		%Rec	1	2/17/2021 12:08:00 AM	57991
Surr: 4-Terphenyl-d14	101	17.6-167		%Rec	1	2/17/2021 12:08:00 AM	57991
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Toluene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Ethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Naphthalene	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Acetone	ND	10		µg/L	1	2/11/2021 1:40:00 AM	R75222
Bromobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Bromodichloromethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Bromoform	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Bromomethane	ND	3.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
2-Butanone	ND	10		µg/L	1	2/11/2021 1:40:00 AM	R75222
Carbon disulfide	ND	10		µg/L	1	2/11/2021 1:40:00 AM	R75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Chlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Chloroethane	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Chloroform	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Chloromethane	ND	3.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Dibromochloromethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Dibromomethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-10

Project: 2021 Giant Former Refinery

Collection Date: 2/4/2021 1:15:00 PM

Lab ID: 2102310-010

Matrix: AQUEOUS

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
2-Hexanone	ND	10		µg/L	1	2/11/2021 1:40:00 AM	R75222
Isopropylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/11/2021 1:40:00 AM	R75222
Methylene Chloride	ND	3.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
n-Butylbenzene	ND	3.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
n-Propylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Styrene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Vinyl chloride	ND	1.0		µg/L	1	2/11/2021 1:40:00 AM	R75222
Xylenes, Total	ND	1.5		µg/L	1	2/11/2021 1:40:00 AM	R75222
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	2/11/2021 1:40:00 AM	R75222
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	2/11/2021 1:40:00 AM	R75222
Surr: Dibromofluoromethane	113	70-130		%Rec	1	2/11/2021 1:40:00 AM	R75222
Surr: Toluene-d8	103	70-130		%Rec	1	2/11/2021 1:40:00 AM	R75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: 2021 Giant Former Refinery

Collection Date:

Lab ID: 2102310-011

Matrix: TRIP BLANK

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
Benzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Toluene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Ethylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Naphthalene	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
2-Methylnaphthalene	ND	4.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Acetone	ND	10		µg/L	1	2/11/2021 2:07:14 AM	W75222
Bromobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Bromodichloromethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Bromoform	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Bromomethane	ND	3.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
2-Butanone	ND	10		µg/L	1	2/11/2021 2:07:14 AM	W75222
Carbon disulfide	ND	10		µg/L	1	2/11/2021 2:07:14 AM	W75222
Carbon Tetrachloride	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Chlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Chloroethane	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Chloroform	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Chloromethane	ND	3.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
2-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
4-Chlorotoluene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
cis-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Dibromochloromethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Dibromomethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,3-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,4-Dichlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Dichlorodifluoromethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1-Dichloroethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1-Dichloroethene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,3-Dichloropropane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
2,2-Dichloropropane	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222

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

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

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Analytical Report

Lab Order 2102310

Date Reported: 2/24/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: 2021 Giant Former Refinery

Collection Date:

Lab ID: 2102310-011

Matrix: TRIP BLANK

Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: BRM
1,1-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Hexachlorobutadiene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
2-Hexanone	ND	10		µg/L	1	2/11/2021 2:07:14 AM	W75222
Isopropylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
4-Isopropyltoluene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
4-Methyl-2-pentanone	ND	10		µg/L	1	2/11/2021 2:07:14 AM	W75222
Methylene Chloride	ND	3.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
n-Butylbenzene	ND	3.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
n-Propylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
sec-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Styrene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
tert-Butylbenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
trans-1,2-DCE	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1,1-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,1,2-Trichloroethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Trichloroethene (TCE)	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Trichlorofluoromethane	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
1,2,3-Trichloropropane	ND	2.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Vinyl chloride	ND	1.0		µg/L	1	2/11/2021 2:07:14 AM	W75222
Xylenes, Total	ND	1.5		µg/L	1	2/11/2021 2:07:14 AM	W75222
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	2/11/2021 2:07:14 AM	W75222
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	2/11/2021 2:07:14 AM	W75222
Surr: Dibromofluoromethane	114	70-130		%Rec	1	2/11/2021 2:07:14 AM	W75222
Surr: Toluene-d8	100	70-130		%Rec	1	2/11/2021 2:07:14 AM	W75222

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57999	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655182 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LLCS-57999	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655184 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	102	50	150			
Iron	ND	0.050	0.02000	0	111	50	150			
Manganese	0.0020	0.0020	0.002000	0	101	50	150			

Sample ID: LCS-57999	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655186 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0030	0.5000	0	97.3	85	115			
Iron	0.47	0.050	0.5000	0	94.3	85	115			
Manganese	0.47	0.0020	0.5000	0	94.5	85	115			

Sample ID: 2102310-004DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655223 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0030	0.5000	0.02434	98.8	70	130			

Sample ID: 2102310-004DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655224 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0030	0.5000	0.02434	99.1	70	130	0.279	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 2102310-004DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655226	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	4.8	0.010	0.5000	4.383	93.2	70	130			

Sample ID: 2102310-004DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75197								
Prep Date: 2/9/2021	Analysis Date: 2/10/2021	SeqNo: 2655227	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Manganese	4.8	0.010	0.5000	4.383	79.4	70	130	1.43	20	

Sample ID: 2102310-004DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75310								
Prep Date: 2/9/2021	Analysis Date: 2/15/2021	SeqNo: 2661067	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.52	0.0060	0.5000	0.01289	101	70	130			

Sample ID: 2102310-004DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75310								
Prep Date: 2/9/2021	Analysis Date: 2/15/2021	SeqNo: 2661071	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.52	0.0060	0.5000	0.01289	101	70	130	0.341	20	

Sample ID: 2102310-004DMS	SampType: MS	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75310								
Prep Date: 2/9/2021	Analysis Date: 2/15/2021	SeqNo: 2661073	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	3.8	0.25	0.5000	3.299	98.9	70	130			

Sample ID: 2102310-004DMSD	SampType: MSD	TestCode: EPA Method 200.7: Metals								
Client ID: GRW-4	Batch ID: 57999	RunNo: 75310								
Prep Date: 2/9/2021	Analysis Date: 2/15/2021	SeqNo: 2661074	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	3.6	0.25	0.5000	3.299	58.7	70	130	5.45	20	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57999	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 57999	RunNo: 75323								
Prep Date: 2/9/2021	Analysis Date: 2/16/2021	SeqNo: 2661762	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	ND	0.0060								

Sample ID: LL LCS-57999	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 57999	RunNo: 75323								
Prep Date: 2/9/2021	Analysis Date: 2/16/2021	SeqNo: 2661763	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.0069	0.0060	0.006000	0	114	50	150			

Sample ID: LCS-57999	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: 57999	RunNo: 75323								
Prep Date: 2/9/2021	Analysis Date: 2/16/2021	SeqNo: 2661764	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.52	0.0060	0.5000	0	103	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-57999	SampType: MBLK	TestCode: EPA 200.8: Metals								
Client ID: PBW	Batch ID: 57999	RunNo: 75231								
Prep Date: 2/9/2021	Analysis Date: 2/11/2021	SeqNo: 2656881	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-57999	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 57999	RunNo: 75231								
Prep Date: 2/9/2021	Analysis Date: 2/11/2021	SeqNo: 2656882	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	99.0	50	150			
Beryllium	ND	0.0010	0.001000	0	90.1	50	150			
Cadmium	0.00050	0.00050	0.0005000	0	100	50	150			
Lead	ND	0.00050	0.0005000	0	94.2	50	150			
Nickel	ND	0.0010	0.001000	0	70.0	50	150			
Selenium	0.0010	0.0010	0.001000	0	103	50	150			
Silver	ND	0.00050	0.0005000	0	95.7	50	150			

Sample ID: MSLCS-57999	SampType: LCS	TestCode: EPA 200.8: Metals								
Client ID: LCSW	Batch ID: 57999	RunNo: 75231								
Prep Date: 2/9/2021	Analysis Date: 2/11/2021	SeqNo: 2656883	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	99.6	85	115			
Beryllium	0.024	0.0010	0.02500	0	97.7	85	115			
Cadmium	0.013	0.00050	0.01250	0	101	85	115			
Lead	0.013	0.00050	0.01250	0	103	85	115			
Nickel	0.025	0.0010	0.02500	0	101	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Silver	0.013	0.00050	0.01250	0	104	85	115			
Thallium	0.013	0.00025	0.01250	0	103	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MSLLCS(TL)-57999		SampType: LCSLL		TestCode: EPA 200.8: Metals						
Client ID: BatchQC		Batch ID: 57999		RunNo: 75231						
Prep Date: 2/9/2021		Analysis Date: 2/11/2021		SeqNo: 2656884		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00027	0.00025	0.0002500	0	107	50	150			

Sample ID: 2102310-010DMSLL		SampType: MS		TestCode: EPA 200.8: Metals						
Client ID: GRW-10		Batch ID: 57999		RunNo: 75231						
Prep Date: 2/9/2021		Analysis Date: 2/11/2021		SeqNo: 2656924		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.027	0.0010	0.02500	0.0003973	105	70	130			
Beryllium	0.023	0.0010	0.02500	0	92.5	70	130			
Cadmium	0.012	0.00050	0.01250	0	94.1	70	130			
Lead	0.015	0.00050	0.01250	0.001471	107	70	130			
Nickel	0.031	0.0010	0.02500	0.004427	105	70	130			
Silver	0.012	0.00050	0.01250	0	93.4	70	130			
Thallium	0.013	0.00025	0.01250	0	105	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-58036	SampType: MBLK	TestCode: EPA Method 245.1: Mercury								
Client ID: PBW	Batch ID: 58036	RunNo: 75260								
Prep Date: 2/10/2021	Analysis Date: 2/12/2021	SeqNo: 2658168	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LL LCS-58036	SampType: LC SLL	TestCode: EPA Method 245.1: Mercury								
Client ID: BatchQC	Batch ID: 58036	RunNo: 75260								
Prep Date: 2/10/2021	Analysis Date: 2/12/2021	SeqNo: 2658169	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	56.2	50	150			

Sample ID: LCS-58036	SampType: LCS	TestCode: EPA Method 245.1: Mercury								
Client ID: LCSW	Batch ID: 58036	RunNo: 75260								
Prep Date: 2/10/2021	Analysis Date: 2/12/2021	SeqNo: 2658170	Units: mg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	91.1	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75132	RunNo: 75132								
Prep Date:	Analysis Date: 2/5/2021	SeqNo: 2652180 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75132	RunNo: 75132								
Prep Date:	Analysis Date: 2/5/2021	SeqNo: 2652181 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	90	110			
Chloride	4.7	0.50	5.000	0	93.6	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.5	90	110			
Sulfate	9.4	0.50	10.00	0	94.3	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R75187	RunNo: 75187								
Prep Date:	Analysis Date: 2/9/2021	SeqNo: 2654873 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R75187	RunNo: 75187								
Prep Date:	Analysis Date: 2/9/2021	SeqNo: 2654874 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	96.7	90	110			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: 100ng lcs	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656576		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	20	1.0	20.00	0	97.6	70	130			
Chlorobenzene	19	1.0	20.00	0	95.9	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.5	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

Sample ID: 100ng lcs2	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: R75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656577		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	70	130			
Toluene	20	1.0	20.00	0	98.3	70	130			
Chlorobenzene	19	1.0	20.00	0	94.6	70	130			
1,1-Dichloroethene	20	1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.6	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.6		10.00		96.5	70	130			

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656603		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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656603		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656603		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	11		10.00		112	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656604		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Sample ID: mb2	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: W75222			RunNo: 75222						
Prep Date:	Analysis Date: 2/10/2021			SeqNo: 2656604		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 43 of 49

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb2	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch ID: W75222				RunNo: 75222					
Prep Date:	Analysis Date: 2/10/2021				SeqNo: 2656604	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	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID: 100ng lcs2	SampType: LCS				TestCode: EPA Method 8260B: VOLATILES					
Client ID: LCSW	Batch ID: R75246				RunNo: 75246					
Prep Date:	Analysis Date: 2/11/2021				SeqNo: 2657558	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	111	70	130			
Toluene	20	1.0	20.00	0	98.5	70	130			
Chlorobenzene	19	1.0	20.00	0	95.0	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	104	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.0	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.3	70	130			
Surr: Dibromofluoromethane	11		10.00		114	70	130			
Surr: Toluene-d8	9.8		10.00		97.8	70	130			

Sample ID: mb	SampType: MBLK				TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW	Batch ID: R75246				RunNo: 75246					
Prep Date:	Analysis Date: 2/11/2021				SeqNo: 2657559	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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb		SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW		Batch ID: R75246		RunNo: 75246						
Prep Date:		Analysis Date: 2/11/2021		SeqNo: 2657559		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R75246			RunNo: 75246						
Prep Date:	Analysis Date: 2/11/2021			SeqNo: 2657559		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.3	70	130			
Surr: Dibromofluoromethane	11		10.00		112	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: mb-57991	SampType: MBLK	TestCode: EPA Method 8270SIM								
Client ID: PBW	Batch ID: 57991	RunNo: 75376								
Prep Date: 2/9/2021	Analysis Date: 2/16/2021	SeqNo: 2663900	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.10								
2-Methylnaphthalene	ND	0.10								
Acenaphthylene	ND	0.10								
Acenaphthene	ND	0.10								
Fluorene	ND	0.10								
Phenanthrene	ND	0.10								
Anthracene	ND	0.10								
Fluoranthene	ND	0.20								
Pyrene	ND	0.20								
Benz(a)anthracene	ND	0.10								
Chrysene	ND	0.10								
Benzo(b)fluoranthene	ND	0.10								
Benzo(k)fluoranthene	ND	0.10								
Benzo(a)pyrene	ND	0.070								
Dibenz(a,h)anthracene	ND	0.10								
Benzo(g,h,i)perylene	ND	0.10								
Indeno(1,2,3-cd)pyrene	ND	0.30								
Surr: Nitrobenzene-d5	2.2		4.000		55.0	26.3	112			
Surr: 2-Fluorobiphenyl	2.1		4.000		53.0	21.1	110			
Surr: 4-Terphenyl-d14	3.6		4.000		90.5	17.6	167			

Sample ID: lcs-57991	SampType: LCS	TestCode: EPA Method 8270SIM								
Client ID: LCSW	Batch ID: 57991	RunNo: 75376								
Prep Date: 2/9/2021	Analysis Date: 2/16/2021	SeqNo: 2663901	Units: µg/L							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.2	0.10	2.000	0	59.0	18.5	83.4			
1-Methylnaphthalene	1.2	0.10	2.000	0	59.0	15.1	89.6			
2-Methylnaphthalene	1.2	0.10	2.000	0	59.0	15	90.6			
Acenaphthylene	1.2	0.10	2.000	0	60.0	18.2	95.3			
Acenaphthene	1.2	0.10	2.000	0	60.0	23.9	90.3			
Fluorene	1.2	0.10	2.000	0	61.0	16.8	106			
Phenanthrene	1.3	0.10	2.000	0	64.0	23.3	105			
Anthracene	1.3	0.10	2.000	0	64.0	15	112			
Fluoranthene	1.5	0.20	2.000	0	74.0	15.4	138			
Pyrene	1.4	0.20	2.000	0	70.0	15	128			
Benz(a)anthracene	1.6	0.10	2.000	0	78.0	38.7	111			
Chrysene	1.6	0.10	2.000	0	79.0	32.6	96.6			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: lcs-57991	SampType: LCS			TestCode: EPA Method 8270SIM						
Client ID: LCSW	Batch ID: 57991			RunNo: 75376						
Prep Date: 2/9/2021	Analysis Date: 2/16/2021			SeqNo: 2663901			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene	1.5	0.10	2.000	0	74.0	23.8	113			
Benzo(k)fluoranthene	1.5	0.10	2.000	0	76.0	18.3	114			
Benzo(a)pyrene	1.4	0.070	2.000	0	72.0	24.5	123			
Dibenz(a,h)anthracene	1.5	0.10	2.000	0	73.0	17.8	118			
Benzo(g,h,i)perylene	1.5	0.10	2.000	0	73.0	22.2	110			
Indeno(1,2,3-cd)pyrene	1.6	0.30	2.000	0	80.0	20.8	115			
Surr: Nitrobenzene-d5	3.7		5.000		73.2	26.3	112			
Surr: 2-Fluorobiphenyl	3.5		5.000		70.8	21.1	110			
Surr: 4-Terphenyl-d14	5.8		5.000		115	17.6	167			

Sample ID: lcsd-57991	SampType: LCSD			TestCode: EPA Method 8270SIM						
Client ID: LCSS02	Batch ID: 57991			RunNo: 75376						
Prep Date: 2/9/2021	Analysis Date: 2/16/2021			SeqNo: 2663902			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.4	0.10	2.000	0	70.0	18.5	83.4	17.1	20	
1-Methylnaphthalene	1.4	0.10	2.000	0	70.0	15.1	89.6	17.1	20	
2-Methylnaphthalene	1.4	0.10	2.000	0	70.0	15	90.6	17.1	20	
Acenaphthylene	1.4	0.10	2.000	0	71.0	18.2	95.3	16.8	20	
Acenaphthene	1.4	0.10	2.000	0	72.0	23.9	90.3	18.2	20	
Fluorene	1.5	0.10	2.000	0	73.0	16.8	106	17.9	20	
Phenanthrene	1.5	0.10	2.000	0	74.0	23.3	105	14.5	20	
Anthracene	1.5	0.10	2.000	0	75.0	15	112	15.8	20	
Fluoranthene	1.7	0.20	2.000	0	84.0	15.4	138	12.7	20	
Pyrene	1.6	0.20	2.000	0	78.0	15	128	10.8	20	
Benz(a)anthracene	1.7	0.10	2.000	0	86.0	38.7	111	9.76	20	
Chrysene	1.7	0.10	2.000	0	85.0	32.6	96.6	7.32	20	
Benzo(b)fluoranthene	1.6	0.10	2.000	0	81.0	23.8	113	9.03	20	
Benzo(k)fluoranthene	1.7	0.10	2.000	0	83.0	18.3	114	8.81	20	
Benzo(a)pyrene	1.6	0.070	2.000	0	78.0	24.5	123	8.00	20	
Dibenz(a,h)anthracene	1.6	0.10	2.000	0	80.0	17.8	118	9.15	20	
Benzo(g,h,i)perylene	1.6	0.10	2.000	0	80.0	22.2	110	9.15	20	
Indeno(1,2,3-cd)pyrene	1.7	0.30	2.000	0	84.0	20.8	115	4.88	20	
Surr: Nitrobenzene-d5	4.2		5.000		84.4	26.3	112	0	0	
Surr: 2-Fluorobiphenyl	3.9		5.000		78.0	21.1	110	0	0	
Surr: 4-Terphenyl-d14	6.0		5.000		120	17.6	167	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102310

24-Feb-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MB-58047	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 58047	RunNo: 75241								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2657122		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: LCS-58047	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 58047	RunNo: 75241								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2657123		Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1060	20.0	1000	0	106	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

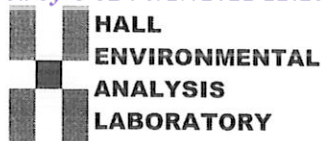
E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 49 of 49



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

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2102310

RcptNo: 1

Received By: Sean Livingston 2/5/2021 8:00:00 AM

Completed By: Sean Livingston 2/5/2021 8:46:02 AM

Reviewed By: DAD 02/08/21
(300 Combo: ENH 2/5/21)

Sean Livingston
Sean Livingston

Chain of Custody

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

Log In

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

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

(300 Combo: 10 < 2) VVZ
2/5/20

Special Handling (if applicable)

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

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

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			
2	1.3	Good	Yes			
3	2.1	Good	Yes			
4	1.4	Good	Yes			

Chain-of-Custody Record		Turn-Around Time:
Client: <u>Marathon</u>	☒ Standard ☐ Rush	
<u>Greg McCartney</u>	Project Name:	
Mailing Address: _____	<u>2021 Giant Former Refinery</u>	
	Project #:	

Phone #: _____

email or Fax#: _____

QA/QC Package: _____

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other _____

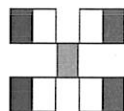
☒ EDD (Type) PDF

✗ EDD (Type) PDF

Date	Time	Matrix	Sample Request ID
4-21	1000	Ag	GRW-9
	1035		GRW-2
	1055		GRW-3
	1120		GRW-4
	1145		GRW-5
	1205		GRW-6
	1230		GRW-12
	1233		GRW-13
	1245		GRW-11
	1315	↓	GRW-10
			Trip Blank

Date: 4-21	Time: 1410	Relinquished by: Caitlyn M...
Date: 4/21	Time: 1811	Relinquished by: Christin...

If necessary, samples submitted to Hall Environmental may be sub-



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Project Manager:	Stuart Hyde
Sampler:	C. McIninn / E. Carroll
On Ice:	☒ Yes ☐ No
Sample Temperature:	see remark

Container Type and #	Preservative Type	HEAL No.
Various	Various	2102310
		001
		002
		003
		004
		005
		006
		007
		008
		009
		010
		011

Received by:	Date	Time
Christ Wack	2/4/21	7:10
Received by:	Date	Time
See courier	2/5/21	8:00

contracted to other accredited laboratories. This serves as notice of this

[illegible]

Remarks: cc: Stuart.hyde@wsp.com
Caitlin.mcginn@wsp.com
eric.carroll@wsp.com
Quote # 2112 1.1-0.2=0.9 2.3-0.2=2.1
1.5-0.2=1.3 1.6-0.2=1.4

possibility. Any sub-contracted data will be clearly notated on the analytical report.

Recommended Analyte List for GBR Site-Wide Sampling Event	
VOCs Method 8260	PAHs Method 8270
benzene	naphthalene
toluene	1-methylnaphthalene
ethylbenzene	2-methylnaphthalene
methyl tert-butyl ether (MTBE)	acenaphthylene
1,2,4-trimethylbenzene	acenaphthene
1,3,5-trimethylbenzene	fluorene
1,2-dichloroethane (EDC)	phenanthrene
1,2-dibromoethane (EDB)	anthracene
naphthalene	fluoranthene
1-methylnaphthalene	pyrene
2-methylnaphthalene	benz(a)anthracene
acetone	chrysene
bromobenzene	benzo(b)fluoranthene
bromodichloromethane	benzo(k)fluoranthene
bromoform	benzo(a)pyrene
bromomethane	dibenz(a,h)anthracene
2-butanone	benzo(g,h,i)perylene
carbon disulfide	indeno(1,2,3-cd)pyrene
carbon tetrachloride	Anions Method 300.0
chlorobenzene	chloride
chloroethane	sulfate
chloroform	fluoride
chloromethane	nitrate + nitrite as N
2-chlorotoluene	Metals Method 200.7
4-chlorotoluene	barium*
cis-1,2-dichloroethene (cis-1,2-DCE)	beryllium
cis-1,3-dichloropropene	cadmium*
1,2-dibromo-3-chloropropane	chromium*
dibromochloromethane	iron
dibromomethane	manganese
1,2-dichlorobenzene	nickel
1,3-dichlorobenzene	silver*
1,4-dichlorobenzene	Metals Method 200.8
dichlorodifluoromethane	arsenic*
1,1-dichloroethane	lead*
1,1-dichloroethene (1,1-DCE)	selenium*
1,2-dichloropropane	thallium
1,3-dichloropropane	Mercury
2,2-dichloropropane	Mercury*
1,1-dichloropropene	Total Dissolved Solids Method M2540C
hexachlorobutadiene	total dissolved solids
2-hexanone	
isopropylbenzene	
4-isopropyltoluene	
4-methyl-2-pentanone	
methylene chloride	
n-butylbenzene	
n-propylbenzene	
sec-butylbenzene	
styrene	
tert-butylbenzene	
1,1,1,2-tetrachloroethane	
1,1,2,2-tetrachloroethane	
tetrachloroethene (PCE)	
trans-1,2-dichloroethene (trans-1,2-DCE)	
trans-1,3-dichloropropene	
1,2,3-trichlorobenzene	
1,2,4-trichlorobenzene	
1,1,1-trichloroethane	
1,1,2-trichloroethane	
trichloroethene (TCE)	
trichlorofluoromethane	
1,2,3-trichloropropane	
vinyl chloride	
xylene, total	

* - asterisks denotes RCRA 8 Metal

Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-18

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 12:30:00 PM

Lab ID: 2103574-001

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0050		mg/L	5	3/15/2021 12:55:36 PM	58685
Beryllium	ND	0.0050		mg/L	5	3/15/2021 12:55:36 PM	58685
Cadmium	ND	0.0025		mg/L	5	3/15/2021 12:55:36 PM	58685
Lead	0.031	0.0025	*	mg/L	5	3/15/2021 12:55:36 PM	58685
Nickel	0.020	0.0050		mg/L	5	3/15/2021 12:55:36 PM	58685
Selenium	ND	0.0050		mg/L	5	3/15/2021 12:55:36 PM	58685
Silver	ND	0.0025		mg/L	5	3/15/2021 12:55:36 PM	58685
Thallium	ND	0.0012		mg/L	5	3/15/2021 12:55:36 PM	58685
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	0.50		mg/L	5	3/11/2021 2:45:51 PM	R75889
Chloride	43	2.5		mg/L	5	3/11/2021 2:45:51 PM	R75889
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	3/11/2021 2:45:51 PM	R75889
Nitrogen, Nitrate (As N)	1.8	0.50		mg/L	5	3/11/2021 2:45:51 PM	R75889
Sulfate	190	2.5		mg/L	5	3/11/2021 2:45:51 PM	R75889
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	5100	200	*D	mg/L	1	3/16/2021 3:31:00 PM	58717
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.040	0.0030		mg/L	1	3/13/2021 9:57:47 AM	58685
Chromium	0.013	0.0060		mg/L	1	3/13/2021 9:57:47 AM	58685
Iron	68	5.0	*	mg/L	100	3/13/2021 11:00:58 AM	58685
Manganese	0.25	0.0020	*	mg/L	1	3/13/2021 9:57:47 AM	58685
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	3/12/2021 2:36:09 PM	58690
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
1-Methylnaphthalene	0.18	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
2-Methylnaphthalene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Acenaphthylene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Acenaphthene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Fluorene	0.26	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Phenanthrene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Anthracene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Fluoranthene	ND	0.20		µg/L	1	3/16/2021 11:42:00 PM	58709
Pyrene	ND	0.20		µg/L	1	3/16/2021 11:42:00 PM	58709
Benz(a)anthracene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Chrysene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Benzo(b)fluoranthene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-18

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 12:30:00 PM

Lab ID: 2103574-001

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Benzo(a)pyrene	ND	0.070		µg/L	1	3/16/2021 11:42:00 PM	58709
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	3/16/2021 11:42:00 PM	58709
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	3/16/2021 11:42:00 PM	58709
Surr: Nitrobenzene-d5	60.0	26.3-112		%Rec	1	3/16/2021 11:42:00 PM	58709
Surr: 2,4,6-Tribromophenol	0	27.7-118	S	%Rec	1	3/16/2021 11:42:00 PM	58709
Surr: 2-Fluorobiphenyl	57.5	21.1-110		%Rec	1	3/16/2021 11:42:00 PM	58709
Surr: 4-Terphenyl-d14	83.0	17.6-167		%Rec	1	3/16/2021 11:42:00 PM	58709
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Toluene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Ethylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,4-Trimethylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,3,5-Trimethylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichloroethane (EDC)	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dibromoethane (EDB)	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Naphthalene	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1-Methylnaphthalene	ND	4.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Methylnaphthalene	ND	4.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Acetone	ND	10	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromodichloromethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromoform	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromomethane	ND	3.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Butanone	ND	10	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Carbon disulfide	ND	10	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Carbon Tetrachloride	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloroethane	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloroform	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloromethane	ND	3.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Chlorotoluene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Chlorotoluene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
cis-1,2-DCE	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
cis-1,3-Dichloropropene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dibromo-3-chloropropane	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Dibromochloromethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948

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

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

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-18

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 12:30:00 PM

Lab ID: 2103574-001

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Dibromomethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,3-Dichlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,4-Dichlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Dichlorodifluoromethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichloroethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichloroethene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichloropropane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,3-Dichloropropane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
2,2-Dichloropropane	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichloropropene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Hexachlorobutadiene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Hexanone	ND	10	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Isopropylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Isopropyltoluene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Methyl-2-pentanone	ND	10	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Methylene Chloride	ND	3.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
n-Butylbenzene	ND	3.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
n-Propylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
sec-Butylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Styrene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
tert-Butylbenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,1,2-Tetrachloroethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,2,2-Tetrachloroethane	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Tetrachloroethene (PCE)	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
trans-1,2-DCE	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
trans-1,3-Dichloropropene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,3-Trichlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,4-Trichlorobenzene	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,1-Trichloroethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,2-Trichloroethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Trichloroethene (TCE)	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Trichlorofluoromethane	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,3-Trichloropropane	ND	2.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Vinyl chloride	ND	1.0	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Xylenes, Total	ND	1.5	P	µg/L	1	3/16/2021 2:07:14 AM	A75948
Surr: 1,2-Dichloroethane-d4	97.8	70-130	P	%Rec	1	3/16/2021 2:07:14 AM	A75948
Surr: 4-Bromofluorobenzene	94.0	70-130	P	%Rec	1	3/16/2021 2:07:14 AM	A75948
Surr: Dibromofluoromethane	98.9	70-130	P	%Rec	1	3/16/2021 2:07:14 AM	A75948

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

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

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-18

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 12:30:00 PM

Lab ID: 2103574-001

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Surr: Toluene-d8	103	70-130	P	%Rec	1	3/16/2021 2:07:14 AM	A75948

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

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

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-1

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 1:00:00 PM

Lab ID: 2103574-002

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0020	0.0010		mg/L	1	3/15/2021 11:41:37 AM	58685
Beryllium	ND	0.0010		mg/L	1	3/15/2021 11:41:37 AM	58685
Cadmium	ND	0.00050		mg/L	1	3/15/2021 11:41:37 AM	58685
Lead	0.0011	0.00050		mg/L	1	3/15/2021 11:41:37 AM	58685
Nickel	0.012	0.0050		mg/L	5	3/15/2021 12:57:59 PM	58685
Selenium	0.0024	0.0010		mg/L	1	3/15/2021 11:41:37 AM	58685
Silver	ND	0.00050		mg/L	1	3/15/2021 11:41:37 AM	58685
Thallium	ND	0.00025		mg/L	1	3/15/2021 11:41:37 AM	58685
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.85	0.50		mg/L	5	3/11/2021 3:11:35 PM	R75889
Chloride	40	2.5		mg/L	5	3/11/2021 3:11:35 PM	R75889
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	3/11/2021 3:11:35 PM	R75889
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	3/11/2021 3:11:35 PM	R75889
Sulfate	2100	50	*	mg/L	100	3/16/2021 10:41:25 AM	R75965
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: MH
Total Dissolved Solids	3540	20.0	*	mg/L	1	3/16/2021 3:31:00 PM	58717
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.014	0.0030		mg/L	1	3/13/2021 10:00:25 AM	58685
Chromium	ND	0.0060		mg/L	1	3/13/2021 10:00:25 AM	58685
Iron	0.86	0.050	*	mg/L	1	3/13/2021 10:00:25 AM	58685
Manganese	2.9	0.010	*	mg/L	5	3/13/2021 10:02:00 AM	58685
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	3/12/2021 2:38:33 PM	58690
EPA METHOD 8270SIM							Analyst: DAM
Naphthalene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
1-Methylnaphthalene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
2-Methylnaphthalene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Acenaphthylene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Acenaphthene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Fluorene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Phenanthrene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Anthracene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Fluoranthene	ND	0.20		µg/L	1	3/17/2021 12:25:00 AM	58709
Pyrene	ND	0.20		µg/L	1	3/17/2021 12:25:00 AM	58709
Benz(a)anthracene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Chrysene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Benzo(b)fluoranthene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-1

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 1:00:00 PM

Lab ID: 2103574-002

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM							Analyst: DAM
Benzo(k)fluoranthene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Benzo(a)pyrene	ND	0.070		µg/L	1	3/17/2021 12:25:00 AM	58709
Dibenz(a,h)anthracene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Benzo(g,h,i)perylene	ND	0.10		µg/L	1	3/17/2021 12:25:00 AM	58709
Indeno(1,2,3-cd)pyrene	ND	0.30		µg/L	1	3/17/2021 12:25:00 AM	58709
Surr: Nitrobenzene-d5	52.5	26.3-112		%Rec	1	3/17/2021 12:25:00 AM	58709
Surr: 2,4,6-Tribromophenol	0	27.7-118	S	%Rec	1	3/17/2021 12:25:00 AM	58709
Surr: 2-Fluorobiphenyl	49.5	21.1-110		%Rec	1	3/17/2021 12:25:00 AM	58709
Surr: 4-Terphenyl-d14	74.5	17.6-167		%Rec	1	3/17/2021 12:25:00 AM	58709
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Toluene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Ethylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Naphthalene	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1-Methylnaphthalene	ND	4.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
2-Methylnaphthalene	ND	4.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Acetone	ND	10		µg/L	1	3/16/2021 2:35:49 AM	A75948
Bromobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Bromodichloromethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Bromoform	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Bromomethane	ND	3.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
2-Butanone	ND	10		µg/L	1	3/16/2021 2:35:49 AM	A75948
Carbon disulfide	ND	10		µg/L	1	3/16/2021 2:35:49 AM	A75948
Carbon Tetrachloride	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Chlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Chloroethane	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Chloroform	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Chloromethane	ND	3.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
2-Chlorotoluene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
4-Chlorotoluene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
cis-1,2-DCE	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Dibromochloromethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948

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

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

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-1

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 1:00:00 PM

Lab ID: 2103574-002

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Dibromomethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1-Dichloroethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1-Dichloroethene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dichloropropane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,3-Dichloropropane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
2,2-Dichloropropane	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1-Dichloropropene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Hexachlorobutadiene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
2-Hexanone	ND	10		µg/L	1	3/16/2021 2:35:49 AM	A75948
Isopropylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
4-Isopropyltoluene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
4-Methyl-2-pentanone	ND	10		µg/L	1	3/16/2021 2:35:49 AM	A75948
Methylene Chloride	ND	3.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
n-Butylbenzene	ND	3.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
n-Propylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
sec-Butylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Styrene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
tert-Butylbenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
trans-1,2-DCE	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Trichlorofluoromethane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Vinyl chloride	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
Xylenes, Total	ND	1.5		µg/L	1	3/16/2021 2:35:49 AM	A75948
Surr: 1,2-Dichloroethane-d4	91.0	70-130		%Rec	1	3/16/2021 2:35:49 AM	A75948
Surr: 4-Bromofluorobenzene	99.8	70-130		%Rec	1	3/16/2021 2:35:49 AM	A75948
Surr: Dibromofluoromethane	95.7	70-130		%Rec	1	3/16/2021 2:35:49 AM	A75948

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

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

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Analytical Report

Lab Order 2103574

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-1

Project: 2021 Giant Former Refinery

Collection Date: 3/10/2021 1:00:00 PM

Lab ID: 2103574-002

Matrix: AQUEOUS

Received Date: 3/11/2021 7:50:00 AM

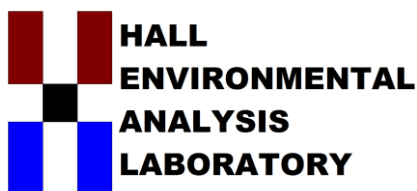
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Surr: Toluene-d8	108	70-130		%Rec	1	3/16/2021 2:35:49 AM	A75948

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

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

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APPENDIX B – UPGRADIENT BLM SPLIT SAMPLING ANALYTICAL LABORATORY REPORTS



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

April 20, 2021

Gregory McCartney
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX: (505) 632-3911

RE: 2021 Giant Former Refinery

OrderNo.: 2104244

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/7/2021 for the analyses presented in the following report.

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

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

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

Sincerely,

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

Analytical Report

Lab Order 2104244

Date Reported: 4/20/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-48

Project: 2021 Giant Former Refinery

Collection Date: 4/6/2021 9:15:00 AM

Lab ID: 2104244-001

Matrix: AQUEOUS

Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Beryllium	ND	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Cadmium	ND	0.00050		mg/L	1	4/8/2021 3:00:14 PM	A76553
Chromium	0.0016	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Lead	ND	0.00050		mg/L	1	4/8/2021 3:00:14 PM	A76553
Nickel	0.041	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Selenium	0.012	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Thallium	ND	0.00050		mg/L	1	4/8/2021 3:00:14 PM	A76553
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0028	0.0010		mg/L	1	4/12/2021 11:15:46 AM	59306
Beryllium	ND	0.0010		mg/L	1	4/12/2021 11:15:46 AM	59306
Cadmium	ND	0.00050		mg/L	1	4/12/2021 11:15:46 AM	59306
Chromium	0.042	0.0010		mg/L	1	4/12/2021 11:15:46 AM	59306
Lead	0.0082	0.00050		mg/L	1	4/12/2021 11:15:46 AM	59306
Nickel	0.058	0.0050		mg/L	5	4/12/2021 11:37:20 AM	59306
Selenium	0.015	0.0010		mg/L	1	4/12/2021 11:15:46 AM	59306
Silver	ND	0.00050		mg/L	1	4/12/2021 11:15:46 AM	59306
Thallium	ND	0.00025		mg/L	1	4/12/2021 11:15:46 AM	59306
SM 5310B: DOC							Analyst: AG
Organic Carbon, Dissolved	1.6	1.0		mg/L	1	4/13/2021 12:11:15 AM	A76640
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	0.50		mg/L	5	4/7/2021 3:58:16 PM	R76513
Chloride	290	10	*	mg/L	20	4/7/2021 4:11:08 PM	R76513
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/7/2021 3:58:16 PM	R76513
Nitrogen, Nitrate (As N)	2.8	0.50		mg/L	5	4/7/2021 3:58:16 PM	R76513
Sulfate	1700	50	*	mg/L	100	4/9/2021 8:18:25 PM	R76591
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3410	100	*D	mg/L	1	4/9/2021 2:30:00 PM	59292
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Barium	0.012	0.0020		mg/L	1	4/8/2021 10:39:36 AM	A76547
Iron	ND	0.020		mg/L	1	4/8/2021 10:39:36 AM	A76547
Manganese	ND	0.0020		mg/L	1	4/8/2021 10:39:36 AM	A76547
Silver	ND	0.0050		mg/L	1	4/12/2021 9:08:18 AM	B76619
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.12	0.0030		mg/L	1	4/9/2021 9:22:39 AM	59306
Iron	17	1.0	*	mg/L	20	4/9/2021 9:33:22 AM	59306

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2104244
Date Reported: 4/20/2021

CLIENT: Western Refining Southwest, Inc. Client Sample ID: GBR-48
Project: 2021 Giant Former Refinery Collection Date: 4/6/2021 9:15:00 AM
Lab ID: 2104244-001 Matrix: AQUEOUS Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: ELS
Manganese	0.38	0.0020	*	mg/L	1	4/9/2021 9:22:39 AM	59306
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	4/12/2021 2:37:42 PM	59342

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

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

Analytical Report

Lab Order 2104244

Date Reported: 4/20/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-50

Project: 2021 Giant Former Refinery

Collection Date: 4/6/2021 10:15:00 AM

Lab ID: 2104244-002

Matrix: AQUEOUS

Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/8/2021 3:02:56 PM	A76553
Beryllium	ND	0.0010		mg/L	1	4/8/2021 3:02:56 PM	A76553
Cadmium	ND	0.00050		mg/L	1	4/8/2021 3:02:56 PM	A76553
Chromium	0.0012	0.0010		mg/L	1	4/8/2021 3:02:56 PM	A76553
Lead	ND	0.00050		mg/L	1	4/8/2021 3:02:56 PM	A76553
Nickel	ND	0.0010		mg/L	1	4/8/2021 3:02:56 PM	A76553
Selenium	0.011	0.0010		mg/L	1	4/8/2021 3:02:56 PM	A76553
Thallium	ND	0.00050		mg/L	1	4/8/2021 3:02:56 PM	A76553
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/12/2021 11:18:09 AM	59306
Beryllium	ND	0.0010		mg/L	1	4/12/2021 11:18:09 AM	59306
Cadmium	ND	0.00050		mg/L	1	4/12/2021 11:18:09 AM	59306
Chromium	0.0023	0.0010		mg/L	1	4/12/2021 11:18:09 AM	59306
Lead	ND	0.00050		mg/L	1	4/12/2021 11:18:09 AM	59306
Nickel	0.0014	0.0010		mg/L	1	4/12/2021 11:18:09 AM	59306
Selenium	0.011	0.0010		mg/L	1	4/12/2021 11:18:09 AM	59306
Silver	ND	0.00050		mg/L	1	4/12/2021 11:18:09 AM	59306
Thallium	ND	0.00025		mg/L	1	4/12/2021 11:18:09 AM	59306
SM 5310B: DOC							Analyst: AG
Organic Carbon, Dissolved	ND	1.0		mg/L	1	4/13/2021 12:28:47 AM	A76640
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.17	0.10		mg/L	1	4/7/2021 4:24:02 PM	R76513
Chloride	68	10		mg/L	20	4/7/2021 4:36:54 PM	R76513
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2021 4:24:02 PM	R76513
Nitrogen, Nitrate (As N)	8.9	2.0		mg/L	20	4/7/2021 4:36:54 PM	R76513
Sulfate	1800	25	*	mg/L	50	4/9/2021 8:30:50 PM	R76591
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3100	20.0	*	mg/L	1	4/9/2021 2:30:00 PM	59292
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Barium	0.0080	0.0020		mg/L	1	4/8/2021 10:42:44 AM	A76547
Iron	ND	0.020		mg/L	1	4/8/2021 10:42:44 AM	A76547
Manganese	0.0093	0.0020		mg/L	1	4/8/2021 10:42:44 AM	A76547
Silver	ND	0.0050		mg/L	1	4/12/2021 9:09:42 AM	B76619
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.0091	0.0030		mg/L	1	4/9/2021 9:23:58 AM	59306
Iron	0.060	0.050		mg/L	1	4/9/2021 9:23:58 AM	59306

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2104244
Date Reported: 4/20/2021

CLIENT: Western Refining Southwest, Inc. Client Sample ID: GBR-50
Project: 2021 Giant Former Refinery Collection Date: 4/6/2021 10:15:00 AM
Lab ID: 2104244-002 Matrix: AQUEOUS Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: ELS
Manganese	0.018	0.0020		mg/L	1	4/9/2021 9:23:58 AM	59306
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	4/12/2021 2:40:05 PM	59342

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

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

Analytical Report

Lab Order 2104244

Date Reported: 4/20/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-32

Project: 2021 Giant Former Refinery

Collection Date: 4/6/2021 11:30:00 AM

Lab ID: 2104244-003

Matrix: AQUEOUS

Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/8/2021 3:05:39 PM	A76553
Beryllium	ND	0.0010		mg/L	1	4/8/2021 3:05:39 PM	A76553
Cadmium	ND	0.00050		mg/L	1	4/8/2021 3:05:39 PM	A76553
Chromium	ND	0.0010		mg/L	1	4/8/2021 3:05:39 PM	A76553
Lead	ND	0.00050		mg/L	1	4/8/2021 3:05:39 PM	A76553
Nickel	0.034	0.0010		mg/L	1	4/8/2021 3:05:39 PM	A76553
Selenium	0.0014	0.0010		mg/L	1	4/8/2021 3:05:39 PM	A76553
Thallium	ND	0.00050		mg/L	1	4/8/2021 3:05:39 PM	A76553
EPA 200.8: METALS							Analyst: bcv
Arsenic	0.0013	0.0010		mg/L	1	4/12/2021 11:20:33 AM	59306
Beryllium	ND	0.0010		mg/L	1	4/12/2021 11:20:33 AM	59306
Cadmium	ND	0.00050		mg/L	1	4/12/2021 11:20:33 AM	59306
Chromium	0.13	0.0050	*	mg/L	5	4/12/2021 11:39:44 AM	59306
Lead	0.0025	0.00050		mg/L	1	4/12/2021 11:20:33 AM	59306
Nickel	0.059	0.0050		mg/L	5	4/12/2021 11:39:44 AM	59306
Selenium	0.0025	0.0010		mg/L	1	4/12/2021 11:20:33 AM	59306
Silver	ND	0.00050		mg/L	1	4/12/2021 11:20:33 AM	59306
Thallium	ND	0.00025		mg/L	1	4/12/2021 11:20:33 AM	59306
SM 5310B: DOC							Analyst: AG
Organic Carbon, Dissolved	1.9	1.0		mg/L	1	4/13/2021 12:48:55 AM	A76640
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	0.50		mg/L	5	4/7/2021 4:49:46 PM	R76513
Chloride	160	10		mg/L	20	4/7/2021 5:02:38 PM	R76513
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/7/2021 4:49:46 PM	R76513
Nitrogen, Nitrate (As N)	1.6	0.50		mg/L	5	4/7/2021 4:49:46 PM	R76513
Sulfate	1800	25	*	mg/L	50	4/9/2021 8:43:14 PM	R76591
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	3240	40.0	*D	mg/L	1	4/9/2021 2:30:00 PM	59292
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Barium	0.012	0.0020		mg/L	1	4/8/2021 10:51:51 AM	A76547
Iron	ND	0.020		mg/L	1	4/8/2021 10:51:51 AM	A76547
Manganese	1.4	0.010	*	mg/L	5	4/8/2021 10:53:28 AM	A76547
Silver	ND	0.0050		mg/L	1	4/12/2021 9:11:06 AM	B76619
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.054	0.0030		mg/L	1	4/9/2021 9:30:20 AM	59306
Iron	6.0	0.50	*	mg/L	10	4/9/2021 9:34:59 AM	59306

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

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report
Lab Order 2104244
Date Reported: 4/20/2021

CLIENT: Western Refining Southwest, Inc. Client Sample ID: GBR-32
Project: 2021 Giant Former Refinery Collection Date: 4/6/2021 11:30:00 AM
Lab ID: 2104244-003 Matrix: AQUEOUS Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: ELS
Manganese	2.0	0.020	*	mg/L	10	4/9/2021 9:34:59 AM	59306
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	4/12/2021 2:42:28 PM	59342

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

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

Analytical Report

Lab Order 2104244

Date Reported: 4/20/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-17

Project: 2021 Giant Former Refinery

Collection Date: 4/6/2021 12:30:00 PM

Lab ID: 2104244-004

Matrix: AQUEOUS

Received Date: 4/7/2021 8:42:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/8/2021 3:08:21 PM	A76553
Beryllium	ND	0.0010		mg/L	1	4/8/2021 3:08:21 PM	A76553
Cadmium	ND	0.00050		mg/L	1	4/8/2021 3:08:21 PM	A76553
Chromium	0.0018	0.0010		mg/L	1	4/8/2021 3:08:21 PM	A76553
Lead	ND	0.00050		mg/L	1	4/8/2021 3:08:21 PM	A76553
Nickel	ND	0.0010		mg/L	1	4/8/2021 3:08:21 PM	A76553
Selenium	0.0032	0.0010		mg/L	1	4/8/2021 3:08:21 PM	A76553
Thallium	ND	0.00050		mg/L	1	4/8/2021 3:08:21 PM	A76553
EPA 200.8: METALS							Analyst: bcv
Arsenic	ND	0.0010		mg/L	1	4/15/2021 11:17:35 AM	59406
Beryllium	ND	0.0010		mg/L	1	4/15/2021 11:17:35 AM	59406
Cadmium	ND	0.00050		mg/L	1	4/15/2021 11:17:35 AM	59406
Chromium	0.0033	0.0010		mg/L	1	4/15/2021 11:17:35 AM	59406
Lead	ND	0.00050		mg/L	1	4/15/2021 11:17:35 AM	59406
Nickel	0.0014	0.0010		mg/L	1	4/15/2021 11:17:35 AM	59406
Selenium	0.0038	0.0010		mg/L	1	4/15/2021 11:17:35 AM	59406
Silver	ND	0.00050		mg/L	1	4/15/2021 11:17:35 AM	59406
Thallium	ND	0.00025		mg/L	1	4/15/2021 11:17:35 AM	59406
SM 5310B: DOC							Analyst: AG
Organic Carbon, Dissolved	ND	1.0		mg/L	1	4/13/2021 1:05:39 AM	A76640
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	0.33	0.10		mg/L	1	4/7/2021 5:41:17 PM	R76513
Chloride	59	10		mg/L	20	4/7/2021 5:54:09 PM	R76513
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/7/2021 5:41:17 PM	R76513
Nitrogen, Nitrate (As N)	7.1	2.0		mg/L	20	4/7/2021 5:54:09 PM	R76513
Sulfate	1300	25	*	mg/L	50	4/9/2021 8:55:39 PM	R76591
SM2540C MOD: TOTAL DISSOLVED SOLIDS							Analyst: KS
Total Dissolved Solids	2330	20.0	*	mg/L	1	4/9/2021 2:30:00 PM	59292
EPA METHOD 200.7: DISSOLVED METALS							Analyst: ELS
Barium	0.0090	0.0020		mg/L	1	4/8/2021 10:55:03 AM	A76547
Iron	ND	0.020		mg/L	1	4/8/2021 10:55:03 AM	A76547
Manganese	ND	0.0020		mg/L	1	4/8/2021 10:55:03 AM	A76547
Silver	ND	0.0050		mg/L	1	4/12/2021 9:12:31 AM	B76619
EPA METHOD 200.7: METALS							Analyst: ELS
Barium	0.011	0.0030		mg/L	1	4/12/2021 8:29:56 AM	B76619
Iron	ND	0.050		mg/L	1	4/12/2021 8:29:56 AM	B76619

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.
	D	Sample Diluted Due to Matrix
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	PQL	Practical Quantitative Limit
	S	% Recovery outside of range due to dilution or matrix

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
J	Analyte detected below quantitation limits
P	Sample pH Not In Range
RL	Reporting Limit

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CLIENT: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery
Lab ID: 2104244-004

Client Sample ID: GBR-17
Collection Date: 4/6/2021 12:30:00 PM
Received Date: 4/7/2021 8:42:00 AM

Matrix: AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS							Analyst: ELS
Manganese	0.015	0.0020		mg/L	1	4/12/2021 8:29:56 AM	B76619
EPA METHOD 245.1: MERCURY							Analyst: ags
Mercury	ND	0.00020		mg/L	1	4/12/2021 2:44:51 PM	59342

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

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



ANALYTICAL REPORT

April 14, 2021

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1335990

Samples Received: 04/08/2021

Project Number:

Description:

Report To: Jackie Bolte
4901 Hawkins NE
Albuquerque, NM 87109

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Entire Report Reviewed By:

A handwritten signature in blue ink that reads "John V. Hawkins".

John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
2104244-001E GBR-48 L1335990-01	5	
2104244-002E GBR-50 L1335990-02	6	⁴ Cn
2104244-003E GBR-32 L1335990-03	7	⁵ Sr
2104244-004E GBR-17 L1335990-04	8	
Qc: Quality Control Summary	9	⁶ Qc
Wet Chemistry by Method 4500S2 D-2011	9	
Gl: Glossary of Terms	11	⁷ Gl
Al: Accreditations & Locations	12	⁸ Al
Sc: Sample Chain of Custody	13	⁹ Sc

SAMPLE SUMMARY

2104244-001E GBR-48 L1335990-01 WW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500S2 D-2011	WG1650836	1	04/13/21 19:00	04/13/21 19:00	CO	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

¹Cp

²Tc

³Ss

2104244-002E GBR-50 L1335990-02 WW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500S2 D-2011	WG1650836	1	04/13/21 19:00	04/13/21 19:00	CO	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

⁴Cn

⁵Sr

2104244-003E GBR-32 L1335990-03 WW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500S2 D-2011	WG1650244	1	04/13/21 17:45	04/13/21 17:45	CO	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

⁶Qc

⁷Gl

⁸Al

2104244-004E GBR-17 L1335990-04 WW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 4500S2 D-2011	WG1650244	1	04/13/21 17:45	04/13/21 17:45	CO	Mt. Juliet, TN

Collected by
Collected date/time
Received date/time

⁹Sc

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



John Hawkins
Project Manager

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		0.0500	1	04/13/2021 19:00	WG1650836

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

Collected date/time: 04/06/21 10:15

L1335990

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		0.0500	1	04/13/2021 19:00	WG1650836

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

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		0.0500	1	04/13/2021 17:45	WG1650244

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc

Wet Chemistry by Method 4500S2 D-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfide	ND		0.0500	1	04/13/2021 17:45	WG1650244

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

Method Blank (MB)

(MB) R3641421-1 04/13/21 17:29

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Sulfide	U		0.0250	0.0500

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

L1336060-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1336060-02 04/13/21 17:46 • (DUP) R3641421-3 04/13/21 17:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

L1337071-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1337071-02 04/13/21 17:46 • (DUP) R3641421-4 04/13/21 17:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3641421-2 04/13/21 17:30

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfide	0.500	0.570	114	85.0-115	

L1337071-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1337071-04 04/13/21 17:47 • (MS) R3641421-5 04/13/21 17:47 • (MSD) R3641421-6 04/13/21 17:47

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 %
Sulfide	1.00	ND	0.887	0.804	88.7	80.4	1	80.0-120			9.82	20

Method Blank (MB)

(MB) R3641423-1 04/13/21 18:56

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Sulfide	U		0.0250	0.0500

L1335990-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1335990-01 04/13/21 19:00 • (DUP) R3641423-3 04/13/21 19:00

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	mg/l	mg/l		%		%
Sulfide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3641423-2 04/13/21 18:57

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Sulfide	0.500	0.554	111	85.0-115	

L1335990-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1335990-02 04/13/21 19:00 • (MS) R3641423-4 04/13/21 19:00 • (MSD) R3641423-5 04/13/21 19:00

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Sulfide	1.00	ND	0.917	0.947	91.7	94.7	1	80.0-120			3.22	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Guide to Reading and Understanding Your Laboratory Report

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

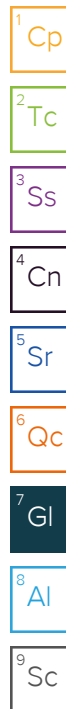
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location.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

Abbreviations and Definitions

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

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.



Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA -- ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

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

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975
FAX: 505-345-4107

Website: clients.hallenvironmental.com

E039

SUB CONTRACTOR: Pace TN		COMPANY: PACE TN		PHONE: (800) 767-5859		FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd				ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122							
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2104244-001E	GBR-48	500PLNAOH ZMAC	Aqueous	4/6/2021 9:15:00 AM	1 Sulfide	>12 <i>u1</i>
2	2104244-002E	GBR-50	500PLNAOH ZMAC	Aqueous	4/6/2021 10:15:00 AM	1 Sulfide	>12 <i>u2</i>
3	2104244-003E	GBR-32	500PLNAOH ZMAC	Aqueous	4/6/2021 11:30:00 AM	1 Sulfide	>12 <i>u3</i>
4	2104244-004E	GBR-17	500PLNAOH ZMAC	Aqueous	4/6/2021 12:30:00 AM	1 Sulfide	>12 <i>u4</i>

Sample Receipt Checklist

COC Seal Present/Intact: ☒ Y ☐ N If Applicable
 COC Signed/Accurate: ☒ Y ☐ N VOA Zero Headspace: ☒ Y ☐ N
 Bottles arrive intact: ☒ Y ☐ N Pres. Correct/Check: ☒ Y ☐ N
 Correct bottles used: ☒ Y ☐ N
 Sufficient volume sent: ☒ Y ☐ N
 RAD Screen <0.5 mR/hr: ☒ Y ☐ N

SPECIAL INSTRUCTIONS / COMMENTS:

1749 9998 3977

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

Relinquished By: <i>[Signature]</i>	Date: 4/7/2021	Time: 10:21 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE FOR LAB USE ONLY Temp of samples <i>1.4, 1.2</i> °C Attempt to Cool? _____ Comments: _____
Relinquished By:	Date:	Time:	Received By:	Date:	Time:	
Relinquished By:	Date:	Time:	Received By: <i>[Signature]</i>	Date: 4-8-21	Time: 10:00	
TAT: Standard ☒ RUSH ☐ Next BD ☐ 2nd BD ☐ 3rd BD ☐						

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711919 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LL LCS	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711921 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	56.3	50	150			
Iron	ND	0.050	0.02000	0	121	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 200.7: Metals								
Client ID: LCSW	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711945 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0030	0.5000	0	104	85	115			
Iron	0.51	0.050	0.5000	0	102	85	115			
Manganese	0.51	0.0020	0.5000	0	102	85	115			

Sample ID: MB-59306	SampType: MBLK	TestCode: EPA Method 200.7: Metals								
Client ID: PBW	Batch ID: 59306	RunNo: 76575								
Prep Date: 4/8/2021	Analysis Date: 4/9/2021	SeqNo: 2713081 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030								
Iron	ND	0.050								
Manganese	ND	0.0020								

Sample ID: LL LCS-59306	SampType: LCSLL	TestCode: EPA Method 200.7: Metals								
Client ID: BatchQC	Batch ID: 59306	RunNo: 76575								
Prep Date: 4/8/2021	Analysis Date: 4/9/2021	SeqNo: 2713082 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0030	0.002000	0	115	50	150			
Iron	ND	0.050	0.02000	0	124	50	150			
Manganese	0.0023	0.0020	0.002000	0	115	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: LCS-59306	SampType: LCS			TestCode: EPA Method 200.7: Metals						
Client ID: LCSW	Batch ID: 59306			RunNo: 76575						
Prep Date: 4/8/2021	Analysis Date: 4/9/2021			SeqNo: 2713083		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0030	0.5000	0	101	85	115			
Iron	0.49	0.050	0.5000	0	97.4	85	115			
Manganese	0.48	0.0020	0.5000	0	96.8	85	115			

Sample ID: 2104244-004CMS	SampType: MS			TestCode: EPA Method 200.7: Metals						
Client ID: GBR-17	Batch ID: B76619			RunNo: 76619						
Prep Date:	Analysis Date: 4/12/2021			SeqNo: 2714660		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0030	0.5000	0.01079	100	70	130			
Manganese	0.50	0.0020	0.5000	0.01501	97.8	70	130			

Sample ID: 2104244-004CMSD	SampType: MSD			TestCode: EPA Method 200.7: Metals						
Client ID: GBR-17	Batch ID: B76619			RunNo: 76619						
Prep Date:	Analysis Date: 4/12/2021			SeqNo: 2714664		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0030	0.5000	0.01079	102	70	130	1.62	20	
Manganese	0.51	0.0020	0.5000	0.01501	98.2	70	130	0.361	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: PBW	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711920 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Iron	ND	0.020								
Manganese	ND	0.0020								

Sample ID: LL LCS	SampType: LCSLL	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: BatchQC	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711922 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	56.3	50	150			
Iron	0.024	0.020	0.02000	0	121	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			

Sample ID: LCS	SampType: LCS	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: LCSW	Batch ID: A76547	RunNo: 76547								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2711946 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0	104	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.51	0.0020	0.5000	0	102	85	115			

Sample ID: MB	SampType: MBLK	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: PBW	Batch ID: B76619	RunNo: 76619								
Prep Date:	Analysis Date: 4/12/2021	SeqNo: 2716980 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								

Sample ID: LL LCS	SampType: LCSLL	TestCode: EPA Method 200.7: Dissolved Metals								
Client ID: BatchQC	Batch ID: B76619	RunNo: 76619								
Prep Date:	Analysis Date: 4/12/2021	SeqNo: 2716981 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.0028	0.0020	0.002000	0	138	50	150			
Iron	0.030	0.020	0.02000	0	150	50	150			S
Manganese	ND	0.0020	0.002000	0	98.4	50	150			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: LLLCS		SampType: LCSLL			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: BatchQC		Batch ID: B76619			RunNo: 76619					
Prep Date:		Analysis Date: 4/12/2021			SeqNo: 2716981		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050	0.005000	0	97.6	50	150			

Sample ID: LCS		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID: LCSW		Batch ID: B76619			RunNo: 76619					
Prep Date:		Analysis Date: 4/12/2021			SeqNo: 2716982		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.52	0.0020	0.5000	0	104	85	115			
Iron	0.51	0.020	0.5000	0	102	85	115			
Manganese	0.50	0.0020	0.5000	0	99.2	85	115			
Silver	0.11	0.0050	0.1000	0	106	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 12 of 20

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-59306	SampType: MBLK	TestCode: EPA 200.8: Metals								
Client ID: PBW	Batch ID: 59306	RunNo: 76609								
Prep Date: 4/8/2021	Analysis Date: 4/12/2021	SeqNo: 2714337 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Chromium	ND	0.0010								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-59306	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 59306	RunNo: 76609								
Prep Date: 4/8/2021	Analysis Date: 4/12/2021	SeqNo: 2714338 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	102	50	150			
Beryllium	ND	0.0010	0.001000	0	88.7	50	150			
Cadmium	ND	0.00050	0.0005000	0	86.8	50	150			
Chromium	0.0010	0.0010	0.001000	0	105	50	150			
Lead	ND	0.00050	0.0005000	0	98.8	50	150			
Nickel	ND	0.0010	0.001000	0	99.1	50	150			
Selenium	0.0010	0.0010	0.001000	0	104	50	150			
Silver	0.00051	0.00050	0.0005000	0	101	50	150			

Sample ID: MSLLCS-TL-59306	SampType: LCSLL	TestCode: EPA 200.8: Metals								
Client ID: BatchQC	Batch ID: 59306	RunNo: 76609								
Prep Date: 4/8/2021	Analysis Date: 4/12/2021	SeqNo: 2714340 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00025	0.00025	0.0002500	0	102	50	150			

Sample ID: MSLCS-59306	SampType: LCS	TestCode: EPA 200.8: Metals								
Client ID: LCSW	Batch ID: 59306	RunNo: 76609								
Prep Date: 4/8/2021	Analysis Date: 4/12/2021	SeqNo: 2714357 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	95.6	85	115			
Beryllium	0.026	0.0010	0.02500	0	103	85	115			
Cadmium	0.011	0.00050	0.01250	0	91.4	85	115			
Chromium	0.025	0.0010	0.02500	0	99.8	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

Page 13 of 20

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MSLCS-59306	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: 59306				RunNo: 76609					
Prep Date: 4/8/2021	Analysis Date: 4/12/2021				SeqNo: 2714357	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.012	0.00050	0.01250	0	99.5	85	115			
Nickel	0.025	0.0010	0.02500	0	98.1	85	115			
Selenium	0.024	0.0010	0.02500	0	95.4	85	115			
Silver	0.012	0.00050	0.01250	0	98.3	85	115			
Thallium	0.012	0.00025	0.01250	0	99.7	85	115			

Sample ID: MB-59406	SampType: MBLK				TestCode: EPA 200.8: Metals					
Client ID: PBW	Batch ID: 59406				RunNo: 76689					
Prep Date: 4/14/2021	Analysis Date: 4/15/2021				SeqNo: 2717606	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Chromium	ND	0.0010								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Silver	ND	0.00050								
Thallium	ND	0.00025								

Sample ID: MSLLCS-59406	SampType: LCSLL				TestCode: EPA 200.8: Metals					
Client ID: BatchQC	Batch ID: 59406				RunNo: 76689					
Prep Date: 4/14/2021	Analysis Date: 4/15/2021				SeqNo: 2717607	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	93.4	50	150			
Beryllium	ND	0.0010	0.001000	0	87.8	50	150			
Cadmium	0.00051	0.00050	0.0005000	0	101	50	150			
Chromium	0.0011	0.0010	0.001000	0	114	50	150			
Lead	0.00050	0.00050	0.0005000	0	101	50	150			
Nickel	ND	0.0010	0.001000	0	97.6	50	150			
Selenium	ND	0.0010	0.001000	0	80.7	50	150			
Silver	ND	0.00050	0.0005000	0	98.4	50	150			

Sample ID: MSLCS-59406	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: 59406				RunNo: 76689					
Prep Date: 4/14/2021	Analysis Date: 4/15/2021				SeqNo: 2717608	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MSLCS-59406	SampType: LCS				TestCode: EPA 200.8: Metals					
Client ID: LCSW	Batch ID: 59406				RunNo: 76689					
Prep Date: 4/14/2021	Analysis Date: 4/15/2021				SeqNo: 2717608	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	101	85	115			
Beryllium	0.027	0.0010	0.02500	0	107	85	115			
Cadmium	0.012	0.00050	0.01250	0	97.8	85	115			
Chromium	0.025	0.0010	0.02500	0	99.5	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			
Nickel	0.025	0.0010	0.02500	0	102	85	115			
Selenium	0.023	0.0010	0.02500	0	93.0	85	115			
Silver	0.012	0.00050	0.01250	0	99.2	85	115			
Thallium	0.013	0.00025	0.01250	0	101	85	115			

Sample ID: MSLLCS-TL-59406	SampType: LCSLL				TestCode: EPA 200.8: Metals					
Client ID: BatchQC	Batch ID: 59406				RunNo: 76689					
Prep Date: 4/14/2021	Analysis Date: 4/15/2021				SeqNo: 2717609	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium	0.00025	0.00025	0.0002500	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: MBLK	TestCode: EPA 200.8: Dissolved Metals								
Client ID: PBW	Batch ID: A76553	RunNo: 76553								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2712149 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Beryllium	ND	0.0010								
Cadmium	ND	0.00050								
Chromium	ND	0.0010								
Lead	ND	0.00050								
Nickel	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.00050								

Sample ID: LCSLL	SampType: LCSLL	TestCode: EPA 200.8: Dissolved Metals								
Client ID: BatchQC	Batch ID: A76553	RunNo: 76553								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2712150 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	103	50	150			
Beryllium	ND	0.0010	0.001000	0	98.5	50	150			
Cadmium	ND	0.00050	0.0005000	0	95.4	50	150			
Chromium	ND	0.0010	0.001000	0	97.5	50	150			
Lead	ND	0.00050	0.0005000	0	96.8	50	150			
Nickel	ND	0.0010	0.001000	0	95.3	50	150			
Selenium	0.0012	0.0010	0.001000	0	120	50	150			
Thallium	ND	0.00050	0.0005000	0	98.4	50	150			

Sample ID: LCS	SampType: LCS	TestCode: EPA 200.8: Dissolved Metals								
Client ID: LCSW	Batch ID: A76553	RunNo: 76553								
Prep Date:	Analysis Date: 4/8/2021	SeqNo: 2712151 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	95.1	85	115			
Beryllium	0.024	0.0010	0.02500	0	95.8	85	115			
Cadmium	0.012	0.00050	0.01250	0	96.2	85	115			
Chromium	0.024	0.0010	0.02500	0	95.3	85	115			
Lead	0.012	0.00050	0.01250	0	96.2	85	115			
Nickel	0.024	0.0010	0.02500	0	97.4	85	115			
Selenium	0.024	0.0010	0.02500	0	96.8	85	115			
Thallium	0.012	0.00050	0.01250	0	96.5	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-59342		SampType: MBLK		TestCode: EPA Method 245.1: Mercury						
Client ID: PBW		Batch ID: 59342		RunNo: 76611						
Prep Date: 4/12/2021		Analysis Date: 4/12/2021		SeqNo: 2714436		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: LL LCS-59342		SampType: LCSLL		TestCode: EPA Method 245.1: Mercury						
Client ID: BatchQC		Batch ID: 59342		RunNo: 76611						
Prep Date: 4/12/2021		Analysis Date: 4/12/2021		SeqNo: 2714437		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020	0.0001500	0	114	50	150			

Sample ID: LCS-59342		SampType: LCS		TestCode: EPA Method 245.1: Mercury						
Client ID: LCSW		Batch ID: 59342		RunNo: 76611						
Prep Date: 4/12/2021		Analysis Date: 4/12/2021		SeqNo: 2714438		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	101	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R76513	RunNo: 76513								
Prep Date:	Analysis Date: 4/7/2021	SeqNo: 2711531 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R76513	RunNo: 76513								
Prep Date:	Analysis Date: 4/7/2021	SeqNo: 2711532 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	99.0	90	110			
Chloride	4.7	0.50	5.000	0	94.3	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.3	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.3	90	110			

Sample ID: MB	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBW	Batch ID: R76591	RunNo: 76591								
Prep Date:	Analysis Date: 4/9/2021	SeqNo: 2713709 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: LCS	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSW	Batch ID: R76591	RunNo: 76591								
Prep Date:	Analysis Date: 4/9/2021	SeqNo: 2713710 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	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
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.
Project: 2021 Giant Former Refinery

Sample ID: MB-DOC		SampType: MBLK		TestCode: SM 5310B: DOC						
Client ID: PBW		Batch ID: A76640		RunNo: 76640						
Prep Date:		Analysis Date: 4/12/2021		SeqNo: 2715741			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	ND	1.0								

Sample ID: LCS-DOC		SampType: LCS		TestCode: SM 5310B: DOC						
Client ID: LCSW		Batch ID: A76640		RunNo: 76640						
Prep Date:		Analysis Date: 4/12/2021		SeqNo: 2715742			Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Organic Carbon, Dissolved	4.9	1.0	4.850	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

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 19 of 20

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2104244

20-Apr-21

Client: Western Refining Southwest, Inc.**Project:** 2021 Giant Former Refinery

Sample ID: MB-59292	SampType: MBLK	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: PBW	Batch ID: 59292	RunNo: 76579								
Prep Date: 4/8/2021	Analysis Date: 4/9/2021	SeqNo: 2713211 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

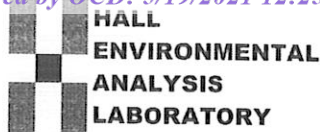
Sample ID: LCS-59292	SampType: LCS	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: LCSW	Batch ID: 59292	RunNo: 76579								
Prep Date: 4/8/2021	Analysis Date: 4/9/2021	SeqNo: 2713212 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	0	101	80	120			

Sample ID: 2104244-002BDUP	SampType: DUP	TestCode: SM2540C MOD: Total Dissolved Solids								
Client ID: GBR-50	Batch ID: 59292	RunNo: 76579								
Prep Date: 4/8/2021	Analysis Date: 4/9/2021	SeqNo: 2713232 Units: mg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3090	20.0						0.388	10	*

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH Not In Range
RL Reporting Limit



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

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2104244

RcptNo: 1

Received By: Cheyenne Cason

4/7/2021 8:42:00 AM

Completed By: Erin Melendrez

4/7/2021 9:41:06 AM

Reviewed By:

SR 4/7/21

Chain of Custody

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

Log In

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

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

Adjusted? no

Checked by: cm 4/7/21

Special Handling (if applicable)

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

Person Notified: _____

Date: _____

By Whom: _____

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.2	Good				

Andy Freeman

From: Hyde, Stuart <Stuart.Hyde@wsp.com>
Sent: Tuesday, April 6, 2021 11:57 AM
To: Andy Freeman
Cc: Michelle Garcia; Hencmann, Devin
Subject: GBR Samples
Attachments: 4500248904.PDF

Andy,

We have five more groundwater samples coming in for GBR today/tomorrow. Western provided Hall with the attached PO. I want to make sure we have enough budget for these additional samples for the analyses below. And if we have extra budget, I would like to get options for rush analysis, something around 3 to 5 day TAT. Let me know. Thanks.

METHOD NUMBER(S)	DESCRIPTION OF ITEM
6020/ 200.8	Total and Dissolved metals by ICP/MS: As, Ba, Be, Cd, Cr, Fe, Pb, Mn, Hg, Ni, Se, Ag, Tl
3500-Fe D	Ferrous Iron
3500-Fe D	Ferric Iron
9056/ 300.0	Anions by IC (F, Cl, SO ₄ , NO ₂ /NO ₃)
9034/376.2	Sulfide
2540C	TDS
9060/ 415.1	DOC

Ba, Fe, Mn (200.7)

Stuart Hyde, L.G.

Environmental Geologist

Please note the new email address



T+ 1 970-385-1096

M+ 1 970-903-1607

Email : stuart.hyde@wsp.com

WSP USA

848 East 2nd Avenue

Durango, Colorado 81301

wsp.com

METHOD NUMBER(S)	DESCRIPTION OF ITEM
6020/ 200.8	Dissolved metals by ICP/MS
3500-Fe D	Ferrous Iron
3500-Fe D	Ferric Iron
9056/ 300.0	Anions by IC
9034/376.2	Sulfide
2540C	TDS
9060/ 415.1	DOC
6020/ 200.8	Total Metals

APPENDIX C – BACKGROUND TRESHOLD VALUE STATISTICAL ANALYSIS

Background Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation ProUCL 5.14/15/2021 11:13:43 AM
 From File 2021 Upgradient_Results for statistical analysis_b.xls
 Full Precision OFF
 Confidence Coefficient 95%
 Coverage 95%
 Different or Future K Observations 1
 Number of Bootstrap Operations 2000

Result (Chloride)

General Statistics

Total Number of Observations	48	Number of Distinct Observations	40
Minimum	43	First Quartile	62.25
Second Largest	530	Median	200
Maximum	560	Third Quartile	325
Mean	218.4	SD	148
Coefficient of Variation	0.678	Skewness	0.47
Mean of logged Data	5.092	SD of logged Data	0.839

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
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Normal GOF Test

Shapiro Wilk Test Statistic 0.909
 5% Shapiro Wilk Critical Value 0.947
 Lilliefors Test Statistic 0.135
 5% Lilliefors Critical Value 0.127

Shapiro Wilk GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	524.6	90% Percentile (z)	408.1
95% UPL (t)	469.3	95% Percentile (z)	461.8
95% USL	653.7	99% Percentile (z)	562.7

Gamma GOF Test

A-D Test Statistic 1.33
 5% A-D Critical Value 0.764
 K-S Test Statistic 0.145
 5% K-S Critical Value 0.13

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	1.85	k star (bias corrected MLE)	1.749
Theta hat (MLE)	118	Theta star (bias corrected MLE)	124.9
nu hat (MLE)	177.6	nu star (bias corrected)	167.9
MLE Mean (bias corrected)	218.4	MLE Sd (bias corrected)	165.1

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	549.9	90% Percentile	438.5
95% Hawkins Wixley (HW) Approx. Gamma UPL	571.4	95% Percentile	540.8
95% WH Approx. Gamma UTL with 95% Coverage	669.8	99% Percentile	769.6
95% HW Approx. Gamma UTL with 95% Coverage	710.4		
95% WH USL	1015	95% HW USL	1133

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.881	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.142	Lilliefors Lognormal GOF Test
5% Lilliefors Critical Value	0.127	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	923.1	90% Percentile (z)	477
95% UPL (t)	674.9	95% Percentile (z)	647
95% USL	1919	99% Percentile (z)	1146

Nonparametric Distribution Free Background Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	47	95% UTL with 95% Coverage	530
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTL	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	549.5	95% BCA Bootstrap UTL with 95% Coverage	530
95% UPL	516.5	90% Percentile	406
90% Chebyshev UPL	667	95% Percentile	472
95% Chebyshev UPL	870.3	99% Percentile	545.9
95% USL	560		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Chromium)

General Statistics

Total Number of Observations	40	Number of Missing Observations	0
Number of Distinct Observations	34		
Number of Detects	39	Number of Non-Detects	1
Number of Distinct Detects	33	Number of Distinct Non-Detects	1
Minimum Detect	0.0069	Minimum Non-Detect	0.006
Maximum Detect	1.4	Maximum Non-Detect	0.006
Variance Detected	0.124	Percent Non-Detects	2.5%
Mean Detected	0.284	SD Detected	0.353
Mean of Detected Logged Data	-2.084	SD of Detected Logged Data	1.442

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.117	d2max (for USL)	2.868
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.752	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.939	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.227	Lilliefors GOF Test
5% Lilliefors Critical Value	0.14	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Kaplan Meier (KM) Background Statistics Assuming Normal Distribution

KM Mean	0.277	KM SD	0.346
95% UTL 95% Coverage	1.01	95% KM UPL (t)	0.868
90% KM Percentile (z)	0.721	95% KM Percentile (z)	0.846

99% KM Percentile (z)	1.082	95% KM USL	1.27
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DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	0.277	SD	0.351	
95% UTL	95% Coverage	1.019	95% UPL (t)	0.875
90% Percentile (z)	0.726	95% Percentile (z)	0.854	
99% Percentile (z)	1.093	95% USL	1.283	

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.388	Anderson-Darling GOF Test
5% A-D Critical Value	0.791	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0836	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.147	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.729	k star (bias corrected MLE)	0.69
Theta hat (MLE)	0.389	Theta star (bias corrected MLE)	0.411
nu hat (MLE)	56.88	nu star (bias corrected)	53.83
MLE Mean (bias corrected)	0.284		
MLE Sd (bias corrected)	0.341	95% Percentile of Chisquare (2kstar)	4.722

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.0069	Mean	0.277
Maximum	1.4	Median	0.13
SD	0.351	CV	1.267
k hat (MLE)	0.7	k star (bias corrected MLE)	0.665
Theta hat (MLE)	0.395	Theta star (bias corrected MLE)	0.417
nu hat (MLE)	56.03	nu star (bias corrected)	53.16
MLE Mean (bias corrected)	0.277	MLE Sd (bias corrected)	0.34
95% Percentile of Chisquare (2kstar)	4.61	90% Percentile	0.703
95% Percentile	0.96	99% Percentile	1.575

The following statistics are computed using Gamma ROS Statistics on Imputed Data

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.288	1.424	95% Approx. Gamma UPL	0.95	1.005
95% Gamma USL	2.096	2.508			

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	0.277	SD (KM)	0.346
Variance (KM)	0.12	SE of Mean (KM)	0.0555
k hat (KM)	0.638	k star (KM)	0.607
nu hat (KM)	51.06	nu star (KM)	48.56
theta hat (KM)	0.434	theta star (KM)	0.456
80% gamma percentile (KM)	0.456	90% gamma percentile (KM)	0.718
95% gamma percentile (KM)	0.991	99% gamma percentile (KM)	1.653

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	1.27	1.404	95% Approx. Gamma UPL	0.937	0.992

95% KM Gamma Percentile	0.893	0.939	95% Gamma USL	2.063	2.47
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Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.962	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.939	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0839	Lilliefors GOF Test
5% Lilliefors Critical Value	0.14	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level**Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects**

Mean in Original Scale	0.277	Mean in Log Scale	-2.177
SD in Original Scale	0.351	SD in Log Scale	1.539
95% UTL95% Coverage	2.95	95% BCA UTL95% Coverage	1.4
95% Bootstrap (%) UTL95% Coverage	1.4	95% UPL (t)	1.566
90% Percentile (z)	0.815	95% Percentile (z)	1.426
99% Percentile (z)	4.07	95% USL	9.36

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	-2.16	95% KM UTL (Lognormal)95% Coverage	2.666
KM SD of Logged Data	1.483	95% KM UPL (Lognormal)	1.448
95% KM Percentile Lognormal (z)	1.323	95% KM USL (Lognormal)	8.113

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	0.277	Mean in Log Scale	-2.177
SD in Original Scale	0.351	SD in Log Scale	1.541
95% UTL95% Coverage	2.958	95% UPL (t)	1.57
90% Percentile (z)	0.816	95% Percentile (z)	1.429
99% Percentile (z)	4.083	95% USL	9.399

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.**Nonparametric Distribution Free Background Statistics****Data appear to follow a Discernible Distribution at 5% Significance Level****Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)**

Order of Statistic, r	40	95% UTL with95% Coverage	1.4
Approx, f used to compute achieved CC	2.105	Approximate Actual Confidence Coefficient achieved by UTL	0.871
Approximate Sample Size needed to achieve specified CC	59	95% UPL	1.302
95% USL	1.4	95% KM Chebyshev UPL	1.805

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Iron)**General Statistics**

Total Number of Observations	41	Number of Missing Observations	0
Number of Distinct Observations	36		
Number of Detects	39	Number of Non-Detects	2
Number of Distinct Detects	35	Number of Distinct Non-Detects	1
Minimum Detect	0.23	Minimum Non-Detect	0.1
Maximum Detect	170	Maximum Non-Detect	0.1
Variance Detected	1043	Percent Non-Detects	4.878%
Mean Detected	18.23	SD Detected	32.3
Mean of Detected Logged Data	1.705	SD of Detected Logged Data	1.668

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.11	d2max (for USL)	2.878
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Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.593	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.939	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.289	Lilliefors GOF Test
5% Lilliefors Critical Value	0.14	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Kaplan Meier (KM) Background Statistics Assuming Normal Distribution**

KM Mean	17.35	KM SD	31.34
95% UTL95% Coverage	83.48	95% KM UPL (t)	70.76
90% KM Percentile (z)	57.51	95% KM Percentile (z)	68.9
99% KM Percentile (z)	90.25	95% KM USL	107.5

DL/2 Substitution Background Statistics Assuming Normal Distribution

Mean	17.35	SD	31.73
95% UTL95% Coverage	84.3	95% UPL (t)	71.42
90% Percentile (z)	58.01	95% Percentile (z)	69.54
99% Percentile (z)	91.16	95% USL	108.7

DL/2 is not a recommended method. DL/2 provided for comparisons and historical reasons**Gamma GOF Tests on Detected Observations Only**

A-D Test Statistic	0.95	Anderson-Darling GOF Test
5% A-D Critical Value	0.81	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.137	Kolmogorov-Smirnov GOF
5% K-S Critical Value	0.149	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level**Gamma Statistics on Detected Data Only**

k hat (MLE)	0.526	k star (bias corrected MLE)	0.502
Theta hat (MLE)	34.68	Theta star (bias corrected MLE)	36.29
nu hat (MLE)	41.01	nu star (bias corrected)	39.19
MLE Mean (bias corrected)	18.23		
MLE Sd (bias corrected)	25.72	95% Percentile of Chisquare (2kstar)	3.854

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)

For such situations, GROS method may yield incorrect values of UCLs and BTVs

This is especially true when the sample size is small.

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	17.35
Maximum	170	Median	4.6
SD	31.73	CV	1.829
k hat (MLE)	0.444	k star (bias corrected MLE)	0.428
Theta hat (MLE)	39.04	Theta star (bias corrected MLE)	40.52
nu hat (MLE)	36.43	nu star (bias corrected)	35.1
MLE Mean (bias corrected)	17.35	MLE Sd (bias corrected)	26.51
95% Percentile of Chisquare (2kstar)	3.474	90% Percentile	48.39
95% Percentile	70.39	99% Percentile	125.3

The following statistics are computed using Gamma ROS Statistics on Imputed Data**Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods**

	WH	HW	WH	HW
95% Approx. Gamma UTL with 95% Coverage	90.35	101.4	95% Approx. Gamma UPL	64.03
				67.92

95% Gamma USL 158 196.9

Estimates of Gamma Parameters using KM Estimates

Mean (KM)	17.35	SD (KM)	31.34
Variance (KM)	982	SE of Mean (KM)	4.958
k hat (KM)	0.307	k star (KM)	0.3
nu hat (KM)	25.13	nu star (KM)	24.63
theta hat (KM)	56.6	theta star (KM)	57.76
80% gamma percentile (KM)	26.61	90% gamma percentile (KM)	51.16
95% gamma percentile (KM)	79.34	99% gamma percentile (KM)	152.5

The following statistics are computed using gamma distribution and KM estimates

Upper Limits using Wilson Hilferty (WH) and Hawkins Wixley (HW) Methods

	WH	HW		WH	HW
95% Approx. Gamma UTL with 95% Coverage	87.1	95.44	95% Approx. Gamma UPL	62.06	64.54
95% KM Gamma Percentile	58.86	60.75	95% Gamma USL	151.3	182.6

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.98	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.939	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0623	Lilliefors GOF Test
5% Lilliefors Critical Value	0.14	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Background Lognormal ROS Statistics Assuming Lognormal Distribution Using Imputed Non-Detects

Mean in Original Scale	17.35	Mean in Log Scale	1.506
SD in Original Scale	31.73	SD in Log Scale	1.853
95% UTL95% Coverage	225.2	95% BCA UTL95% Coverage	89
95% Bootstrap (%) UTL95% Coverage	170	95% UPL (t)	106.1
90% Percentile (z)	48.49	95% Percentile (z)	95.06
99% Percentile (z)	336.1	95% USL	933.6

Statistics using KM estimates on Logged Data and Assuming Lognormal Distribution

KM Mean of Logged Data	1.509	95% KM UTL (Lognormal)95% Coverage	212.1
KM SD of Logged Data	1.824	95% KM UPL (Lognormal)	101.2
95% KM Percentile Lognormal (z)	90.79	95% KM USL (Lognormal)	859.7

Background DL/2 Statistics Assuming Lognormal Distribution

Mean in Original Scale	17.35	Mean in Log Scale	1.475
SD in Original Scale	31.73	SD in Log Scale	1.922
95% UTL95% Coverage	252.6	95% UPL (t)	115.8
90% Percentile (z)	51.36	95% Percentile (z)	103.3
99% Percentile (z)	382.8	95% USL	1105

DL/2 is not a Recommended Method. DL/2 provided for comparisons and historical reasons.

Nonparametric Distribution Free Background Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Upper Limits for BTVs(no distinction made between detects and nondetects)

Order of Statistic, r	41	95% UTL with95% Coverage	170
Approx, f used to compute achieved CC	2.158	Approximate Actual Confidence Coefficient achieved by UTL	0.878
Approximate Sample Size needed to achieve specified CC	59	95% UPL	86.9
95% USL	170	95% KM Chebyshev UPL	155.6

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Manganese)			
General Statistics			
Total Number of Observations	32	Number of Distinct Observations	29
Minimum	0.041	First Quartile	0.315
Second Largest	4.8	Median	0.765
Maximum	6.4	Third Quartile	1.3
Mean	1.187	SD	1.416
Coefficient of Variation	1.192	Skewness	2.415
Mean of logged Data	-0.395	SD of logged Data	1.134
Critical Values for Background Threshold Values (BTVs)			
Tolerance Factor K (For UTL)	2.186	d2max (for USL)	2.773
Normal GOF Test			
Shapiro Wilk Test Statistic	0.708	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.93	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.25	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.154	Data Not Normal at 5% Significance Level	
Data Not Normal at 5% Significance Level			
Background Statistics Assuming Normal Distribution			
95% UTL with 95% Coverage	4.282	90% Percentile (z)	3.001
95% UPL (t)	3.625	95% Percentile (z)	3.516
95% USL	5.113	99% Percentile (z)	4.481
Gamma GOF Test			
A-D Test Statistic	0.41	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.775	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.117	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.16	Detected data appear Gamma Distributed at 5% Significance Level	
Detected data appear Gamma Distributed at 5% Significance Level			
Gamma Statistics			
k hat (MLE)	1.017	k star (bias corrected MLE)	0.943
Theta hat (MLE)	1.167	Theta star (bias corrected MLE)	1.259
nu hat (MLE)	65.11	nu star (bias corrected)	60.34
MLE Mean (bias corrected)	1.187	MLE Sd (bias corrected)	1.223
Background Statistics Assuming Gamma Distribution			
95% Wilson Hilferty (WH) Approx. Gamma UPL	3.645	90% Percentile	2.774
95% Hawkins Wixley (HW) Approx. Gamma UPL	3.771	95% Percentile	3.632
95% WH Approx. Gamma UTL with 95% Coverage	4.924	99% Percentile	5.633
95% HW Approx. Gamma UTL with 95% Coverage	5.275		
95% WH USL	6.927	95% HW USL	7.773
Lognormal GOF Test			
Shapiro Wilk Test Statistic	0.987	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.93	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0734	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.154	Data appear Lognormal at 5% Significance Level	
Data appear Lognormal at 5% Significance Level			

95% UTL with 95% Coverage	8.036
95% UPL (t)	4.747
95% USL	15.64

90% Percentile (z)	2.881
95% Percentile (z)	4.35
99% Percentile (z)	9.42

Nonparametric Distribution Free Background Statistics**Data appear Gamma Distributed at 5% Significance Level****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	32	95% UTL with 95% Coverage	6.4
Approx, f used to compute achieved CC	1.684	Approximate Actual Confidence Coefficient achieved by UTL	0.806
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	6.4	95% BCA Bootstrap UTL with 95% Coverage	6.4
95% UPL	5.36	90% Percentile	2.09
90% Chebyshev UPL	5.5	95% Percentile	4.305
95% Chebyshev UPL	7.454	99% Percentile	5.904
95% USL	6.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Sulfate)**General Statistics**

Total Number of Observations	48	Number of Distinct Observations	17
Minimum	190	First Quartile	1600
Second Largest	2300	Median	1800
Maximum	2800	Third Quartile	2000
Mean	1776	SD	405.6
Coefficient of Variation	0.228	Skewness	-1.313
Mean of logged Data	7.435	SD of logged Data	0.384

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
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Normal GOF Test

Shapiro Wilk Test Statistic	0.901
5% Shapiro Wilk Critical Value	0.947
Lilliefors Test Statistic	0.155
5% Lilliefors Critical Value	0.127

Shapiro Wilk GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level**Background Statistics Assuming Normal Distribution**

95% UTL with 95% Coverage	2615	90% Percentile (z)	2296
95% UPL (t)	2463	95% Percentile (z)	2443
95% USL	2969	99% Percentile (z)	2719

Gamma GOF Test

A-D Test Statistic	3.502
5% A-D Critical Value	0.749
K-S Test Statistic	0.213
5% K-S Critical Value	0.128

Anderson-Darling Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level**Gamma Statistics**

k hat (MLE)	10.76	k star (bias corrected MLE)	10.1
Theta hat (MLE)	165	Theta star (bias corrected MLE)	175.8
nu hat (MLE)	1033	nu star (bias corrected)	969.7
MLE Mean (bias corrected)	1776	MLE Sd (bias corrected)	558.7

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	2784	90% Percentile	2519
95% Hawkins Wixley (HW) Approx. Gamma UPL	2866	95% Percentile	2783
95% WH Approx. Gamma UTL with 95% Coverage	3063	99% Percentile	3326
95% HW Approx. Gamma UTL with 95% Coverage	3180		
95% WH USL	3786	95% HW USL	4015

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.596
5% Shapiro Wilk Critical Value	0.947
Lilliefors Test Statistic	0.251
5% Lilliefors Critical Value	0.127

Shapiro Wilk Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	3747	90% Percentile (z)	2770
95% UPL (t)	3247	95% Percentile (z)	3185
95% USL	5237	99% Percentile (z)	4137

Nonparametric Distribution Free Background Statistics**Data do not follow a Discernible Distribution (0.05)****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	47	95% UTL with 95% Coverage	2300
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTL	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	2625	95% BCA Bootstrap UTL with 95% Coverage	2200
95% UPL	2255	90% Percentile	2130
90% Chebyshev UPL	3005	95% Percentile	2200
95% Chebyshev UPL	3562	99% Percentile	2565
95% USL	2800		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Total Dissolved Solids)**General Statistics**

Total Number of Observations	48	Number of Distinct Observations	46
Minimum	1460	First Quartile	2793
Second Largest	4320	Median	3220
Maximum	5100	Third Quartile	3698
Mean	3265	SD	645.2
Coefficient of Variation	0.198	Skewness	0.204
Mean of logged Data	8.071	SD of logged Data	0.208

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
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Normal GOF Test

Shapiro Wilk Test Statistic	0.981
5% Shapiro Wilk Critical Value	0.947
Lilliefors Test Statistic	0.0818
5% Lilliefors Critical Value	0.127

Shapiro Wilk GOF Test

Data appear Normal at 5% Significance Level

Lilliefors GOF Test

Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level**Background Statistics Assuming Normal Distribution**

95% UTL with 95% Coverage	4599
95% UPL (t)	4358
95% USL	5162

90% Percentile (z)	4091
95% Percentile (z)	4326
99% Percentile (z)	4765

Gamma GOF Test

A-D Test Statistic	0.35
5% A-D Critical Value	0.748
K-S Test Statistic	0.0816
5% K-S Critical Value	0.128

Anderson-Darling Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level**Gamma Statistics**

k hat (MLE)	24.9
Theta hat (MLE)	131.1
nu hat (MLE)	2390
MLE Mean (bias corrected)	3265

k star (bias corrected MLE)	23.35
Theta star (bias corrected MLE)	139.8
nu star (bias corrected)	2242
MLE Sd (bias corrected)	675.5

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	4464
95% Hawkins Wixley (HW) Approx. Gamma UPL	4483
95% WH Approx. Gamma UTL with 95% Coverage	4775
95% HW Approx. Gamma UTL with 95% Coverage	4807
95% WH USL	5557

90% Percentile	4155
95% Percentile	4449
99% Percentile	5038
95% HW USL	5630

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.947
Lilliefors Test Statistic	0.0883
5% Lilliefors Critical Value	0.127

Shapiro Wilk Lognormal GOF Test

Data appear Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	4922
95% UPL (t)	4554
95% USL	5902

90% Percentile (z)	4178
95% Percentile (z)	4506
99% Percentile (z)	5193

Nonparametric Distribution Free Background Statistics**Data appear Normal at 5% Significance Level****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	47	95% UTL with 95% Coverage	4320
Approx, f used to compute achieved CC	1.237	Approximate Actual Confidence Coefficient achieved by UTL	0.699
		Approximate Sample Size needed to achieve specified CC	93
95% Percentile Bootstrap UTL with 95% Coverage	4827	95% BCA Bootstrap UTL with 95% Coverage	4827
95% UPL	4307	90% Percentile	4051
90% Chebyshev UPL	5220	95% Percentile	4283
95% Chebyshev UPL	6106	99% Percentile	4733
95% USL	5100		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Background Statistics for Uncensored Full Data Sets

User Selected Options

Date/Time of Computation ProUCL 5.14/16/2021 12:32:19 AM
 From File P:\Western Refining\Giant Former Refinery\Background Statistics and EPA 5-Year Review\Background Statistics
 Full Precision OFF
 Confidence Coefficient 95%
 Coverage 95%
 New or Future K Observations 1
 Number of Bootstrap Operations 2000

Result (Chromium)

General Statistics

Total Number of Observations	40	Number of Distinct Observations	34
Minimum	0.006	First Quartile	0.038
Second Largest	1.32	Median	0.13
Maximum	1.4	Third Quartile	0.365
Mean	0.277	SD	0.351
Coefficient of Variation	1.268	Skewness	1.886
Mean of logged Data	-2.16	SD of logged Data	1.502

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.117	d2max (for USL)	2.868
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Normal GOF Test

Shapiro Wilk Test Statistic 0.747
 5% Shapiro Wilk Critical Value 0.94
 Lilliefors Test Statistic 0.228
 5% Lilliefors Critical Value 0.139

Shapiro Wilk GOF Test

Data Not Normal at 5% Significance Level

Lilliefors GOF Test

Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	1.019	90% Percentile (z)	0.726
95% UPL (t)	0.875	95% Percentile (z)	0.854
95% USL	1.283	99% Percentile (z)	1.093

Gamma GOF Test

A-D Test Statistic 0.378
 5% A-D Critical Value 0.795
 K-S Test Statistic 0.0812
 5% K-S Critical Value 0.146

Anderson-Darling Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Kolmogorov-Smirnov Gamma GOF Test

Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.692	k star (bias corrected MLE)	0.656
Theta hat (MLE)	0.4	Theta star (bias corrected MLE)	0.421
nu hat (MLE)	55.34	nu star (bias corrected)	52.52
MLE Mean (bias corrected)	0.277	MLE Sd (bias corrected)	0.341

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	0.953	90% Percentile	0.705
95% Hawkins Wixley (HW) Approx. Gamma UPL	1.011	95% Percentile	0.964
95% WH Approx. Gamma UTL with 95% Coverage	1.294	99% Percentile	1.585
95% HW Approx. Gamma UTL with 95% Coverage	1.435		
95% WH USL	2.108	95% HW USL	2.534

Lognormal GOF Test

Shapiro Wilk Test Statistic 0.959
 5% Shapiro Wilk Critical Value 0.94
 Lilliefors Test Statistic 0.083

Shapiro Wilk Lognormal GOF Test

Data appear Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

5% Lilliefors Critical Value 0.139 Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Background Statistics assuming Lognormal Distribution

95% UTL with 95% Coverage	2.775	90% Percentile (z)	0.791
95% UPL (t)	1.496	95% Percentile (z)	1.365
95% USL	8.565	99% Percentile (z)	3.799

Nonparametric Distribution Free Background Statistics

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Upper Limits for Background Threshold Values

Order of Statistic, r	40	95% UTL with 95% Coverage	1.4
Approx, f used to compute achieved CC	2.105	Approximate Actual Confidence Coefficient achieved by UTL	0.871
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	1.4	95% BCA Bootstrap UTL with 95% Coverage	1.4
95% UPL	1.302	90% Percentile	0.731
90% Chebyshev UPL	1.342	95% Percentile	0.968
95% Chebyshev UPL	1.825	99% Percentile	1.369
95% USL	1.4		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

Result (Iron)

General Statistics

Total Number of Observations	41	Number of Distinct Observations	36
Minimum	0.1	First Quartile	1.4
Second Largest	89	Median	4.6
Maximum	170	Third Quartile	17
Mean	17.35	SD	31.73
Coefficient of Variation	1.829	Skewness	3.344
Mean of logged Data	1.509	SD of logged Data	1.846

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.11	d2max (for USL)	2.878
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Normal GOF Test

Shapiro Wilk Test Statistic	0.583	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.941	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.293	Lilliefors GOF Test
5% Lilliefors Critical Value	0.137	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with 95% Coverage	84.3	90% Percentile (z)	58.01
95% UPL (t)	71.42	95% Percentile (z)	69.54
95% USL	108.6	99% Percentile (z)	91.16

Gamma GOF Test

A-D Test Statistic	0.796	Anderson-Darling Gamma GOF Test
5% A-D Critical Value	0.819	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.126	Kolmogorov-Smirnov Gamma GOF Test
5% K-S Critical Value	0.146	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.476	k star (bias corrected MLE)	0.458
Theta hat (MLE)	36.44	Theta star (bias corrected MLE)	37.92
nu hat (MLE)	39.04	nu star (bias corrected)	37.52
MLE Mean (bias corrected)	17.35	MLE Sd (bias corrected)	25.65

Background Statistics Assuming Gamma Distribution

95% Wilson Hilferty (WH) Approx. Gamma UPL	63.23	90% Percentile	47.79
95% Hawkins Wixley (HW) Approx. Gamma UPL	65.94	95% Percentile	68.78
95% WH Approx. Gamma UTL with 95% Coverage	88.92	99% Percentile	120.8
95% HW Approx. Gamma UTL with 95% Coverage	97.75		
95% WH USL	154.8	95% HW USL	187.7

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.979
5% Shapiro Wilk Critical Value	0.941
Lilliefors Test Statistic	0.0554
5% Lilliefors Critical Value	0.137

Shapiro Wilk Lognormal GOF Test

Data appear Lognormal at 5% Significance Level

Lilliefors Lognormal GOF Test

Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level**Background Statistics assuming Lognormal Distribution**

95% UTL with 95% Coverage	222.5	90% Percentile (z)	48.19
95% UPL (t)	105.2	95% Percentile (z)	94.24
95% USL	917.7	99% Percentile (z)	331.6

Nonparametric Distribution Free Background Statistics**Data appear Gamma Distributed at 5% Significance Level****Nonparametric Upper Limits for Background Threshold Values**

Order of Statistic, r	41	95% UTL with 95% Coverage	170
Approx, f used to compute achieved CC	2.158	Approximate Actual Confidence Coefficient achieved by UTL	0.878
		Approximate Sample Size needed to achieve specified CC	59
95% Percentile Bootstrap UTL with 95% Coverage	170	95% BCA Bootstrap UTL with 95% Coverage	89
95% UPL	86.9	90% Percentile	48
90% Chebyshev UPL	113.7	95% Percentile	68
95% Chebyshev UPL	157.3	99% Percentile	137.6
95% USL	170		

Note: The use of USL tends to yield a conservative estimate of BTV, especially when the sample size starts exceeding 20. Therefore, one may use USL to estimate a BTV only when the data set represents a background data set free of outliers and consists of observations collected from clean unimpacted locations.

The use of USL tends to provide a balance between false positives and false negatives provided the data represents a background data set and when many onsite observations need to be compared with the BTV.

State of New Mexico
Energy, Minerals and Natural Resources Department

Michele Lujan Grisham Governor

Sarah Cottrell Propst Cabinet Secretary

Dylan M. Fuge
Deputy Secretary (Acting)

Dylan M. Fuge, Division Director
Oil Conservation Division



Kateri A Luka, Sr. Environmental Specialist
Marathon Petroleum Company
2350 E. 223rd St
Carson, CA 90810

RE: Determination of Administratively Complete Stage 2 Abatement Plan Modification for Former Giant Bloomfield Refinery GW-040

Ms. Luka,

Oil Conservation Division (OCD) received a Stage 2 Abatement Plan Modification submittal for Western Refining Southwest LLC on behalf by WSP, dated May 18, 2021.

The OCD has reviewed the modifications to the Stage 2 AP and determined the plan submittal to be administratively complete and is approved. This letter serves as notification to Western Refining.

Stage 2 abatement plan document satisfies the requirements of Paragraph 6.A **Stage 2 Abatement Plan** of Discharge Permit GW-40, issued on January 6, 2021, and in accordance with paragraphs A. and B. of 19.15.30.18 of the NMAC.

If you have any questions, please contact Mike Buchanan of the Environmental Incident Group at (505) 490-0798 or by email at michael.buchanan@emnrd.nm.gov

Respectfully,

Rosa M. Romero

Rosa Romero
Environmental Bureau Chief

Date: 11/13/23

RR/mb

Sante Fe Main Office
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General Information
Phone: (505) 629-6116

Online Phone Directory
<https://www.emnrd.nm.gov/oed/contact-us>

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

CONDITIONS

Action 28822

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 28822
	Action Type: [UF-DP] Discharge Permit (DISCHARGE PERMIT)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Approval for the stage 2 abatement plan was approved on 11.13.23. Letter of Approval is attached at the end of the document.	2/21/2025