# **GW - 040**

# STAGE 2 ABATEMENT PLAN 2021

From:	McDill, Teresa L, EMNRD
То:	Billings, Bradford, EMNRD
Subject:	Bloomfield Stage 2 Abatement Plan for your review
Start:	Friday, July 23, 2021 1:00:00 PM
End:	Friday, July 23, 2021 2:00:00 PM
Location:	Microsoft Teams Meeting
Attachments:	202003 Stage 1 Abatement Plan.pdf
	2019 to Oct 2020 Bloomfield Gen Correspondence.pdf
	20210518 DP GW-40 GBR Stage 2 Abatement Plan-Final-ALL.pdf

Just so you have these attached docs; I believe this is most of what should apply. In the correspondence, on Oct 13, 2020, Carl refers to an "Abatement Plan Stage 2" but I'm not able to find a Stage 2 issued before Oct 2020. I'll keep digging if needed. At any rate, they have sent in a new Stage 2 Abatement Plan in May 2021 for our review. We can talk about it and then you can review—no need to feel pressure before our meeting!

Thank you,

Terry

PS Bloomfield does have a new GW Discharge Permit, in contract to Carl's email-he must have decided to proceed with the permit.

Microsoft Teams meeting

Join on your computer or mobile app

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From:	McDill, Teresa L, EMNRD
To:	Billings, Bradford, EMNRD
Subject:	as promised
Date:	Friday, June 18, 2021 3:44:00 PM
Attachments:	20190324 Amendment Stage 1 Abatement Plan Landfarms.pdf 20190903 Stage I Progress Report.pdf

Here is the background I promised in the first email...

I'm thinking I may set up a Tams for HFNR? Easier to drop doc into?

**Teresa L. McDill** • Environmental Scientist Environmental Bureau EMNRD - Oil Conservation Division 1220 S St Francis Dr | Santa Fe, NM 87505 505.469.6769 | <u>TeresaL.McDill@state.nm.us</u> http://www.emnrd.state.nm.us/OCD/

From:	<u>Hyde, Stuart</u>
To:	McDill, Teresa L, EMNRD
Cc:	Hencmann, Devin; Luka, Kateri A; McCartney, Gregory J.
Subject:	[EXT] RE: GBR Stage 2 Abatement Plan
Date:	Wednesday, May 19, 2021 12:30:33 PM
Attachments:	image005.png
	image001.png DP GW-40 GBR Stage 2 Abatement Plan-Final-ALL.pdf

#### Terry,

The abatement plan has been uploaded through the portal and is attached for your review. Thanks much and reach out anytime with questions.

**Stuart Hyde, L.G.** Environmental Geologist *T*+ *1* 970-385-1096 *M*+ *1* 970-903-1607



From: McDill, Teresa L, EMNRD <TeresaL.McDill@state.nm.us>
Sent: Tuesday, May 18, 2021 4:44 PM
To: Hyde, Stuart <Stuart.Hyde@wsp.com>; Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: Hencmann, Devin <Devin.Hencmann@wsp.com>
Subject: RE: GBR Stage 2 Abatement Plan

Hello again Stuart,

Could you also send me a copy by email? The portal is not yet notifying me of the uploads; I'll try to find out this week how that is working. I appreciate it.

Best Regards, Terry

From: McDill, Teresa L, EMNRD
Sent: Tuesday, May 18, 2021 3:43 PM
To: Hyde, Stuart <<u>Stuart.Hyde@wsp.com</u>>; Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>
Cc: Hencmann, Devin <<u>Devin.Hencmann@wsp.com</u>>
Subject: RE: GBR Stage 2 Abatement Plan

Hello Stuart,

Please upload it to the portal, and I will review. Nice to meet you, too, Stuart!

Thank you, Terry From: Hyde, Stuart <<u>Stuart.Hyde@wsp.com</u>>
Sent: Tuesday, May 18, 2021 2:59 PM
To: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>
Cc: Hencmann, Devin <<u>Devin.Hencmann@wsp.com</u>>; McDill, Teresa L, EMNRD
<<u>TeresaL.McDill@state.nm.us</u>>
Subject: [EXT] RE: GBR Stage 2 Abatement Plan

Carl,

Thanks for all of your assistance on the GBR project and moving it forward.

Teresa,

Nice to meet you and please let me know how you would like us to submit the abatement plan for the former Giant Bloomfield Refinery site. Also feel free to reach out if you have any questions. Thanks much and talk to you soon.

**Stuart Hyde, L.G.** Environmental Geologist *T*+ *1* 970-385-1096 *M*+ *1* 970-903-1607



From: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>
Sent: Tuesday, May 18, 2021 2:11 PM
To: Hyde, Stuart <<u>Stuart.Hyde@wsp.com</u>>
Cc: Hencmann, Devin <<u>Devin.Hencmann@wsp.com</u>>; McDill, Teresa L, EMNRD
<<u>TeresaL.McDill@state.nm.us</u>>
Subject: RE: GBR Stage 2 Abatement Plan

Stuart,

Hi. I have transferred into the Engineering Bureau, UIC Group.

Ms. Teresa McDill at 55-469-6769 is the new refinery contact for OCD.

You may contact her to see how she requests to receive it.

Thank you.

Carl J. Chavez • UIC Group Engineering Bureau EMNRD - Oil Conservation Division 5200 Oakland Avenue, N.E. Suite 100 | Albuquerque, NM 87113 505.660.7923 | CarlJ.Chavez@state.nm.us

#### http://www.emnrd.state.nm.us/OCD/



From: Hyde, Stuart <<u>Stuart.Hyde@wsp.com</u>>
Sent: Tuesday, May 18, 2021 11:39 AM
To: Chavez, Carl J, EMNRD <<u>CarlJ.Chavez@state.nm.us</u>>
Cc: Hencmann, Devin <<u>Devin.Hencmann@wsp.com</u>>
Subject: [EXT] GBR Stage 2 Abatement Plan

Carl,

We are ready to submit the GBR abatement plan and I was wondering how you would like us to submit. Should we email directly to you or someone else at the NMOCD, or submit to the portal online, or both? Thanks much.

**Stuart Hyde, L.G.** Environmental Geologist *Please note the new email address.* 



T+ 1 970-385-1096 M+ 1 970-903-1607 Email : <u>stuart.hyde@wsp.com</u>

WSP USA 848 East 2<sup>nd</sup> Avenue Durango, Colorado 81301

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#### WESTERN REFINING SOUTHWEST, LLC

### STAGE 2 ABATEMENT PLAN FORMER GIANT BLOOMFIELD REFINERY

MAY 18, 2021



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### STAGE 2 ABATEMENT PLAN FORMER GIANT BLOOMFIELD REFINERY

WESTERN REFINING SOUTHWEST, LLC

PROJECT NO.: 31403103.000.295 DATE: MAY 18, 2021

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<sup>&</sup>lt;sup>1</sup> Approval of this document is an administrative function indicating readiness for release and does not impart legal liability on to the Approver for any technical content contained herein. Technical accuracy and fit-for-purpose of this content is obtained through the review process. The Approver shall ensure the applicable review process has occurred prior to signing the document.

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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 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-dichloropene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloropene, isopropylbenzene, methylene chloride, n-propylbenzene, sec-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, GBR40, 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<sup>TM</sup> 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 microbialdegradation 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 oxidationreduction 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 UPGRADIENT 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, impellor-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 weth 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-togroundwater 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:

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

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:

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

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 NMWOCC 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 discernable 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 siterelated 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 is 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 15<sup>th</sup> of each year. Reports will include the information specified in Section 2.E. of Discharge Permit GW-40.

### **6 REFERENCES**

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#### FIGURES







#### LEGEND



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LEG	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	



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



WESTERN REFINING SOUTHWEST, LLC



P:\Western Refining\GIS\MXD\31403103.000.0295\_GBR\_2021\31403103.000.0295\_FIG05\_GWE\_JAN\_2021.mxd


- DRY BORING GBR-40 ۲





FORMER LEE ACRES LANDFILL











- DRY BORING GBR-40 ۲



- SAMPLE NOT ANALYZED
- BENZENE NOT DETECTED
- BENZENE DETECTED BELOW 5 µg/L

BENZENE DETECTED ABOVE 5  $\mu\text{g/L}$ 







- DRY BORING GBR-40 ۲
- CROSS SECTION A-A' CROSS SECTION B-B' ARROYO FORMER LEE ACRES LANDFILL SOURCE AREA

- SAMPLE NOT ANALYZED
- TOTAL NAPHTHALENES NOT DETECTED
- TOTAL NAPHTHALENES DETECTED BELOW 30 µg/L
- TOTAL NAPHTHALENES DETECTED ABOVE 30 µg/L







- DRY BORING GBR-40 ۲
- CROSS SECTION A-A' CROSS SECTION B-B' ARROYO FORMER LEE ACRES LANDFILL SOURCE AREA

- SAMPLE NOT ANALYZED
- TOTAL LEAD NOT DETECTED
- TOTAL LEAD DETECTED BELOW 0.015 mg/L
- TOTAL LEAD DETECTED ABOVE 0.015 mg/L







- DRY BORING GBR-40 ۲



- SAMPLE NOT ANALYZED
- TOTAL MANGANESE NOT DETECTED
- TOTAL MANGANESE DETECTED BELOW 0.2 mg/L (NMWQCC STANDARD)
- TOTAL MANGANESE DETECTED BETWEEN 0.2 mg/L AND 5.27 mg/L (BACKGROUND CONCENTRATION)
- TOTAL MANGANESE DETECTED ABOVE 5.27 mg/L





## 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 55.00	25 - 65	sand/clay/gravel	6
GRW-11/GBR-2/ CDW 12/CDD 28	5,397.85	55.60	22 - 62	sand/shale/sandstone	5
GRW-12/GBR-20 CPW 13/CRP 14	5 306 00	70.86	24 - 04	sand/cray/sandstone	6
GRR-5*	5 395 07	46.88	20 - 00	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-25 (1)* CRP 24D*	5,405.72	41.75	24 - 34	sandstone	2
CRD 246*	5 306 08	22.50	22 22	sandstone	2
GBR-245 GRR-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/clav	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 GBR-41	5,400.76	39.40	26 - 36	sand	2
CPD 49	5,390.35	34.34	22 - 32	sand	2
GBK-48 CBD 40	5,415.90	43.70	28 - 38	sand/gravel	2
GBR-50	(2)	40.63	20 - 30	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 Abane	loned 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	-	-	-	-
5H5-4	5,383.02	52.10	-	-	-
SHS-5 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

 ${\bf S}$  - 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

				Februa	ary 2020			Apri	1 2020			July	2020			Decem	ber 2020			Janua	y 2021	
Well Number	Wellhead Elevation (feet)	Total Depth (feet)	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		E	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		E	Dry			D	ry			D	ry			E	Dry			D	ry	
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		Ľ	Dry			Ľ	ry	
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		E	Dry		31.22	1	1		31.58	-	-	5,364.50		E	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 21.60	-	-	-	35.81	-	-	5,360.47	NM	-	-	-	26.20	D	ry	5 257 62
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./1	35.18	-	-	5,358.48	35.50	-	-	5,358.16	35.41	-	-	5,358.25
GBR-39	5,397.55	41.39	34.22	-	-	5,505.55	34.17	-	-	5,303.38	34.34	-	-	5,363.21	34.07	-	-	5,302.88	34.30	-	-	5,363.05
GBK-40 CBD 41	5,400.76	39.40	24.27		ny	5 262 00		D	ry		24.07	D	ny	5 262 00	24.27	L	Лу	5 262 00			ry	
GBR-41	5,396.35	34.34	34.27	-	-	5,362.08	26.00		ry	5 276 01	34.27	-	-	5,362.08	34.27	-	-	5,362.08	27.70	Ľ	ry	5 276 11
GBR-48 CPD 40	5,413.90	45.70	30.98	-	-	5,376.92	30.99	-	-	5,376.91	37.20	-	-	5,576.64	NM	-		-	57.79	-	-	5,576.11
GBK-49 CBD 50	(1)	40.20	22.70	-	-	-	33.47	-	-	-	33./1	-	-	-	NDA	Obst	ructea	1	22.50	Obst	uciea	
GBK-50	(1)	40.63	32.70	-	-	-	22.72	-	-	-	32.98	-	-	-	NM 28.12	-	-	-	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
5115-9	5,380.79	40.27	37.74			5,343.03	37.70	-	-	5,343.03	38.9	-	-	5,341.89	38.93	-	-	5,341.84	38.23			5,342.30
5115-13	3,307.81	4/.51	55.88	-	-	5,551.95	53.8	-	-	5,552.01	30.13	-	-	3,331.08	36.23	-	-	3,293.70	30.33	-	-	3,331.48

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

WSP

# TABLE 3 GROUNDWATER QUALITY PARAMETERS

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

			April 2021		
Well Number	рН	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
<b>GRW-9 / GBR-6</b>	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

VOCs Method 8260B
benzene
toluene
ethylbenzene
xylenes, 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

1,3-dichloropropane
2,2-dichloropropane
1,1-dichloropropene
hexachlorobutadiene
2-hexanone
isopropylbenzene
4-isopropytoluene
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

				53		/ /	/ /	/ /	. /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	' /	- 5 <sup>CO</sup> /	' /	/
				CULIE C					ATBE .		1.2																			1.3	S 121		nane
			9	-	/ /	/ /	/ /	Nether	Incluenc	Incluenc	some (EL	Terre Feld	/ /	relene	relene	/ /		methane		/ . /	/ /		Intide	/ /		/ /		/ . /	/ . /	rethenet	morene	Chloroph	Ζ.
	the Date		IN STREET	" / .	. / .	entene	-S- total	Inst-thick	innethy!	innethy!	hippoette	ROMOOT .	alene	Strapht .	Ninapitt	. / .	Dentene	diction0.	(orn	methane	none	disuffic	remedu	pentere	there	IOT IT	nethune	ouduent .	and we are	diction	diction .	romo <sup>3</sup>	nothoro
Well	Samt		date pente	oluer	ethyl	or when	e mett	× ×	7 3	- 	× 2,28			2.114	s aceto	. prom	prom.	prom	mon	2.19110			. chlore	dhore	chior	chloro	2.011	x <sup>dh</sup>	6511	<u>itshi</u>	2200	<u>aircor</u>	4
Unit NMWOCC Standard			μg/L 5	μg/L 1,000	μg/L 700	μg/L 620	μg/L 100	µg/L NE	µg/L NE	μg/L 5	μg/L 0.05	µg/L	µg/L combined 3	μg/L 0	µg/L NE	µg/L NE	µg/L NE	µg/L NE	µg/L NE	µg/L NE	µg/L NE	μg/L 5	µg/L NE	μg/L NE	μg/L 100	µg/L NE	μg/L NE	µg/L NE	μg/L 70	µg/L NE	µg/L NE	µg/L NE	μ
EPA Regional Screening Lev	vel (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	٤
Lee Acres Alluvial Aquifer E	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	-
Lee Acres Regional Backgro Lee Acres RI/ROD Remedia	ll 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	70	NE	NE	NE	
GBR Background Concentra	ations (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	_
GRW-1/GBR-38	Mar-21			nd <1.0	<1.0	<1.5	<1.0	<1.0	<1.0	nd <1.0	<1.0	<2.0	<4.0	<4.0	<10	<1.0	<1.0	nd <1.0	-3.0	<10	<10	nd <1.0	nd <1.0	nd <2.0	<1.0	<3.0	<1.0	<1.0	<1.0	nd <1.0	<2.0	<1.0	-
GRW-2/GBR-42	Sep-89 Feb-21		0.26 <1.0	nd <1.0	1.6 <1.0	0.23 <1.5	<1.0	 <1.0	 <1.0	0.36 <1.0	 <1.0	<2.0	<2.0	<2.0	<10	<1.0	nd <1.0	nd <1.0	nd <3.0		<10	nd <1.0	nd <1.0	nd <2.0	nd <1.0	nd <3.0	<1.0	<1.0	<1.0	nd <1.0	<2.0	nd <1.0	<
	Jun-86		3,818	3,338	nd	5,210				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	
	Jun-88 Jan-00		3,500	320 nd	<b>800</b> 45	1,880 0.60	 nd			nd	nd						nd	nd 0.50	nd			nd	nd	nd	nd nd	nd			nd	nd		nd	+
CDW 2/CDD 20	Jan-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd				nd		nd	
GRW-3/GBR-29	Jan-10 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	<4.0	<10 <10	<1.0	<1.0	<1.0	<1.0 <3.0	<10 <10	10 <10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<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	<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	-
	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	-
GRW-4/GBR-43	Feb-21		<5.0	nd <5.0	<5.0	<7.5	<5.0	<5.0	<5.0	nd <5.0	<5.0	<10	<20	<20	<50	<5.0	nd <5.0	nd <5.0		<50	<50	nd <5.0	nd <5.0	nd <10	nd <5.0	nd <15	<5.0	<5.0	<5.0	nd <5.0	<10	nd <5.0	<
GRW-5/ GBR-37	Jun-88 Feb-21		<b>68</b> <1.0	2.0 <1.0	61 <1.0	43 <1.5	<1.0	<1.0	<1.0	4.0 <1.0	<1.0	<2.0	<4.0	<4.0	23	<1.0	nd <1.0	nd <1.0	nd <3.0	<10	<10	nd <1.0	nd <1.0	nd <2.0	nd <1.0	nd <3.0	<1.0	<1.0	7.0 <1.0	nd <1.0	<2.0	nd <1.0	
	Jun-88		10	0.70	nd	nd				2.4							nd	nd	nd			nd	nd	nd	nd	nd			20	nd		nd	$\uparrow$
	Jan-00 Jan-05		nd	nd	nd	nd	nd			0.50	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	
GRW-6/GBR-44	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	<10	<10	<1.0	<1.0	<2.0	<1.0	na	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<
	Aug-15 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 <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	-
	Feb-21		<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	<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	
	Nov-86		70	nd	nd	1,240				3.0							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	1
GRW-9/GBR-6	Feb-21		<1.0	nd <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	nd <1.0	nd <1.0	nd <3.0	<10	<10	nd <1.0	nd <1.0	nd <2.0	nd <1.0	nd <3.0	<1.0	<1.0	<1.0	nd <1.0	<2.0	nd <1.0	<
	Jun-88		15	nd	nd	13				3.5							nd	nd	nd			nd	nd	nd	nd	nd			80	nd		nd	-
GRW-10/GBR-36	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	-
GRW-11/GBR-27	Jun-86 Fab-21		<b>410</b>	120	nd	506				nd							nd	nd <1.0	nd -3.0			nd <1.0	nd <1.0	nd	nd <1.0	nd -3.0			nd <1.0	nd <1.0	~2.0	nd <1.0	
	Mav-86		319	143	nd	224																											+
GRW-12/GBR-28	Jun-88		1,060	nd	nd	270				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	1
	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	-
	Nov-86 Dec-88		nd	nd	nd	nd				2.5							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	+
GRW-13/GBR-14	Jan-95		nd	nd	nd	nd	 n d			5.4	0.70						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	-
	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	<
CDD CA	Jun-86		530	200	1,000	4,600				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	
GBR-5*	Feb-21		<5.0	<5.0	<5.0	<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	<
GBR-7	Nov-86 Jan-21 (Not Sampled, PSH)		<u>21</u> 	nd 	nd 					nd 							nd 	nd 	nd 			nd 	nd 	nd 	nd 	nd 			nd 	nd 		nd 	$\vdash$
	Oct-86		2,670	1,460	1,890	6,980				nd																							1
GBR-8	Aug-15		<5.0	<5.0	<5.0	<7.5				nd 							nd 	nd 	nd 			nd 	nd 	nd 	nd 	nd 				nd 		nd	+
	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	39	<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	<
	Nov-86		<b>49</b>	nd	nd	2.0				6.0 5.1							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	-
GBR-9	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	<2.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	-
CRD 10	Nov-86		9,500	1,100	670	3,130				150							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	$\mathbf{t}$
OBK-10	Jan-21 (Obstructed)																													<u> </u>			$\vdash$
GRP 11	Jun-86 Aug-15		4,600 1.7	3,100 <1.0	960 1.1	1,780 <1.5				140							nd	nd	nd			nd	nd	nd	nd 	nd			nd	nd	<u> </u>	nd	$\vdash$
GDR-11	Feb-21		11	<5.0	8.5	15	<5.0	6.8	<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	
	Jun-86		1,300	12	130	731				58							nd	nd	nd			nd	nd	nd	nd	nd				nd		nd	F
GBR-13*	Feb-21		<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	<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	-



TABLE 5 GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

som.			AND DE DE CONTRACTOR	and the second	introducine .	Southern State	e helungelune	and the state of t	SCE) Williamore Schill	Sharmone 2.4	Libron of the Libro	Manager State	orden and the second	some start	Shewere wat	or other and	N. Promote	e durine most	source som	powers scine	person area	stratifier	ere little	and the state of t	se and and	2. Martine Martine	And	allor and a star	and the second second	Schloredune	and the state of t	Statement CD	Johnmontone 22.54	school of the second
Unit	<u> </u>	ſŤ	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	NE	5	NE	NE	NE	100	NE	NE	10 5	100	NE	NE	70	200	5	5	NE	NE	2
EPA Regional Screening Lev	vel (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 E	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 Backgro	und 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 Remedia	l Goals (4)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE 5.0	100	NE	NE	NE	NE	NE	5.0	NE	NE	1.0
GBR Background Concentra	ations (5)		INE	nd	nd	nd	nd	nd	INE	INE	INE	NE	INE	INE	INE	INE	nd	INE	INE	INE	NE	INE	INE	ne ne	nd	nd	INE	INE	nd	nd	nd	nd	INE	nd
GRW-1/GBR-38	Mar-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	1.8	<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
																							_											
GRW-2/GBR-42	Sep-89 Feb-21		nd <1.0	nd	<1.0	nd	nd	nd	<1.0		<1.0	<1.0	<10	<1.0	<1.0	<10	nd		<1.0	<1.0	<1.0		<1.0	nd nd	<1.0	nd <1.0	<1.0	<1.0	nd	nd	nd	<1.0		nd
	10011		<1.0	<1.0	<1.0	<1.0	<1.0	~1.0	<1.0	~2.0	<1.0	<1.0	~10	<1.0	<1.0	<10	0.0	0.0	<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	~1.0	×2.0	<1.0
	Jun-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
	Jun-88		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
	Jan-00 Jan-05		nd	nd		nd	nd	nd									5.8 pd							nd nd	nd	nd			nd	nd pd	nd	nd		nd
GRW-3/GBR-29	Jan-10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	2.7	<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
	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	1.8	<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
CDW (CDD 12	Sep-89		nd	nd		nd	nd	nd									nd							nd nd		nd			71	nd	nd	1.4		nd
GKW-4/GBR-43	Feb-21		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<50	<5.0	<5.0	<50	<15	<15	<5.0	<5.0	<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	<10	<5.0
	Jun-88		nd	nd	nd	2.5	nd	nd									nd							nd 2.3	nd	nd			1.5	nd	2.4	nd		nd
GRW-5/ GBR-37	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Jun-88	H	nd	pd	nd	5.5	nd	nd	+								pd							nd 67	nd	pd			5.5	pd	3.6	nd		nd
	Jan-00		nd	nd		nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
	Jan-05		nd	nd		nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GRW-6/GBR-44	Jan-10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-19 Eab 21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Peb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GRW-9/GBR-6	Dec-88		nd	nd	nd	nd	nd	nd									nd							nd 0.60	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	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	2.0	<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
CPW 10/CBP 36	Jun-88		nd	nd	nd	9.6	nd	nd									nd							nd <b>17</b>	nd	nd			10	nd	10	nd		nd
GKW-10/GBR-50	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	2.0	<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
CDW LL CDD AS	Jun-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GKW-11/GBK-2/	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	May-86																																	
GRW-12/GBR-28	Jun-88		nd	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	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	1.7	<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
	Nov-86		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
GRW-13/GBR-14	Jan-95		nd	nd		nd		nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
	Jan-00 Feb-21		nd <1.0	nd <1.0	<1.0	nd <1.0	nd <1.0	nd	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	nd <3.0	<3.0	<1.0	<1.0	<1.0	2.0	<1.0	- nu nd	nd <1.0	nd <1.0	<1.0	<1.0	nd <1.0	nd <1.0	nd <1.0	nd <1.0	<2.0	nd <1.0
			~+.0	~1.0	~1.0	~1.0	~1.0	V.1.2	~1.0	~2.0	~1.0	~1.0	~10	~1.0	~1.0	~10			~	~0	~1.0	2.0			×1.0	~1.0	~1.0	~1.0	~1.0	~1.0	~1.0	~1.0	-2.0	~0
GBR-5*	Jun-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
	Peb-21		<.0	<5.0	0.0	<.0	<.0	<.0	<.0	<10	0.0	<5.0	00	<.0	<5.0	<00	<15	<15	<5.0	0.0	<0.0	<.0	<	<10 <5.0	<>.0	<.0	0.0	<3.0	<5.0	<3.0	0.0	<.0	<10	<5.0
GRP 7	Nov-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
UDK-/	Jan-21 (Not Sampled, PSH)																																	
	Oct-86																																	
CBD o	Dec-88		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
UDK-ð	Aug-15																																	
	reb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0	0.1>	<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	<1.0	<2.0	<1.0
	Nov-86		nd	nd	nd	4.0	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GBR-9	Aug-88		nd	nd	nd	3.3	0.60	nd									nd							nd 0.90		nd			1.3	nd	2.5	nd		nd
	reb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<5.0	0.1>	<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	<1.0	<2.0	<1.0
GRP 10	Nov-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GBK-10	Jan-21 (Obstructed)																													-				
	Jun-86		nd	nd	nd	nd	nd	nd									nd							nd nd	nd	nd			nd	nd	nd	nd		nd
GBR-11	Aug-15																																	
	Feb-21		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<50	<5.0	<5.0	<50	<15	<15	<5.0	<5.0	<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	<10	<5.0
	Jun-86		nd	nd	nd	25	nd	nd	1								nd							nd nd	10	nd			23	nd	nd	nd		nd
GBR-13*	Dec-88		nd	nd	nd	5.2	nd	nd									1.6							nd nd	14	nd			1.8	nd	4.8	0.60		nd
	Feb-21		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
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				CUL					ATBE .		6		~ / ·																		E L'		ropane
			in the second se	Celle .	/ /		/	wolette	whenten	wittenten	athone (C.	attene (C.	/ /	Introlene	Hitelene	/ /		TOINSTIN	/ /		/ /	.sube	thinide	· . /	. /	/ /	~ /	ate .	are	methent	101001000	3 chloron	Ζ,
AD.	mple Dis		INTE CLE	aene	ere / 3	hentent	anes total	any learns a	intresto,	timet.	achioron a di	stones and	natere	inylmat.	anything?	s sui	Deluet mi	dicition of	iorn m	metha	none mor	disult not	etrat into	oenter	attene sort	iorit	method with	and all all	notoine 13	Allethe A	3-diction and	orone	ometho
Unit	<u>Sar</u>	$\mathbf{f}$	μg/L	μg/L	μg/L	<u>μg/L</u>	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	μg/L	ν <sup>,η,</sup> μg/L	μg/L	μg/L	 µg/L	μg/L	р <sup>го.</sup> 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	β <sup>j01</sup> μg/L	+
NMWQCC Standard			5	1,000	700	620	100	NE	NE	5	0.05		combined 2	0	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	100	NE	NE	NE	70	NE	NE	NE	4
EPA Regional Screening L Lee Acres Alluvial Aquifer	evel (1) Background Concentration (2)	-	4.55 NE	1,100 NE	15 NE	193 NE	143 NE	55.7 NE	60.3 NE	1.71 NE	0.0747 NE	1.17 NE	11.4 NE	35.9 NE	14,100 NE	62.2 NE	1.34 NE	32.9 NE	7.55 NE	5,570 NE	811 NE	4.55 NE	77.7 NE	NE NE	2.21 NE	188 NE	237 NE	250 NE	36.1 NE	4.71 NE	0.00334 NE	8.71 NE	+
Lee Acres Regional Backg	round 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	
Lee Acres RI/ROD Remed GBR Background Concent	lial Goals (4) trations (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	70 NE	NE	NE	NE	+
	Oct-86		334	52	209	772				78							nd	nd				nd		nd	nd	nd				nd		nd	
CBP 15	Dec-88 Jan-95	_	nd	nd	1.30 nd	2.5				nd 9.8	nd						nd	nd nd	nd nd			nd nd	nd nd	nd	nd nd	nd			 nd	nd nd		nd nd	_
GBR-15	Jan-00		nd	nd	0.70	nd	nd			3.10	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	
	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	+
	Jun-86 Dec-88	-	nd	nd	nd	nd				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd 	nd		nd	+
	Jan-95 Dec-00	_	nd	nd	nd	nd				nd	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	_
GBR-17	Dec-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd				nd		nd	-
	Jan-10 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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<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	<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
	Jan-21	-	<1.0	<1.0	<1.0	<1.5 nd	<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	+
GBR-18*	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	<0.5	<1.0			<0.2				-
	Mar-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	_
GBR-20*	Jun-86 Aug-15	_	<b>4.0</b> <2.0	nd <2.0	nd <2.0	nd <3.0				nd							nd 	nd 	nd 			nd	nd	nd 	nd	nd			nd	nd		nd	+
OBR 20	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	_
GBR-21S*	Jan-21 (Dry)																																_
	May-88		nd	22	2.0	234																											—
GBR-21D*	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	
	May-86		nd	nd	nd	nd																											1
GBR-22*	Aug-15 Jan-21 (Not Sampled, PSH)	-	1.7	<2.0		6.3																											-
GBR-23*	Jan-21 (Dry or Obstructed)																																┯
	Nov-86		580	200	300	495				60																							
GBR-24S*	Jan-21 (Obstructed)																																_
	Nov-86 Jun-88	_	230 63	5.0	180	nd 40				69 55							 nd	 nd	 nd			 nd	nd	 nd	 nd	 nd			 nd	nd		 nd	+
	Jan-95		0.60	nd	2.3	0.80				11	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	1
GBR-24D*	Jan-00 Jan-05		0.60	nd	nd 0.90	nd	nd			19	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd 	nd		nd	-
-	Jan-10 Anne-15		<1.0	<1.0	<1.0	<1.5	<1.0	3.5	<1.0	<1.0	<1.0	<2.0	8.0	7.4	<10	<1.0	<1.0	<1.0	<1.0	<10	<10	<1.0	<1.0	<2.0	<1.0		<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	—
	Nov-19		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	1.6	<1.0	<2.0	<2.0	<2.0	<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	+
	Feb-21		<1.0	<1.0	<1.0	<1.5	<1.0	<1.0	<1.0	1.3	<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	_
GBR-25*	May-86 Aug-15		nd <5.0	nd <5.0	nd 15	nd <7.5																											+
	Feb-21		<5.0	<5.0	<5.0	<7.5	<5.0	6.7	<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	
CIPE of	Oct-86 Ane-15		<b>5,280</b>	119	54	<b>1,140</b>				66							nd	nd				nd		nd	nd	nd				nd		nd	+
GBR-26	Jan-21 (No Recovery)		~2.0							-																							
	Dec-86		nd	nd	nd	nd				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	1
	Jun-88 Jan-95	-	nd	nd	nd	20 nd				0.98 nd	nd						nd	nd	nd			nd	nd nd	nd	nd nd	nd			nd	nd		nd	+
GBR-30	Jan-00		nd	nd	nd	nd	nd				nd						nd	nd	nd			nd	nd	nd	nd	nd			0.60	nd		nd	+
	Jan-10 Aug-15		<1.0 <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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	$\pm$
	Nov-19 Feb-21		<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	<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	+
	Nov-86		nd	nd	nd	nd	~1.0	~1.0		nd		-2.0	~T.U	V.T.V	~10	~1.0	10	nd	nd	~10		nd	nd	nd	nd	nd		~1.0	23	nd	-2.0	nd	+
	Jun-88		nd	nd	nd	nd				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd	+
	Jan-95 Jan-00		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd nd	nd nd	nd nd	nd			0.70	nd		nd	+
GBR-31	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	<10	<10	<1.0	<1.0	<2.0	<1.0		<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	$\top$
	Aug-15 Nov-19		<1.0 <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 <1.0	<2.0	<1.0	$\pm$
	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	_



TABLE 5 GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

			A COLUMN STREET	ALCONTR.	and the second	ALL ROOM	Aller Child	50) Store	- COLORE	AND DE LA COLORE	AL OFFICE	mailere		Jere	June	a starter	weite			TENE		Jet	Hurselland	Marchurk	MERE OF CO.	Margine U	Marth 2. D.C.	and the second	and the series	Contrast.	Contrast.	N <sup>e</sup> ll <sup>CD</sup>	and the second	- Aller - Contraction - Contractio - Contraction - Contraction - Contraction - Contraction - Contrac
Nall	Cample Dat	A CALIFORNIA COMPANY	interest Add	children water	rolifur 1.1.8	chioros 1.8	chlore 2 di	hlorof 3-dir	thoron 22-die	alorot 1. die	alorot nessel	Moreby Cherry	none	all the series of the series o	or the line	SIL2 OF READY	se cit store	Denie Pop	bent schut	Been syren	art-burg	per 11.12	ternet 122	erret errethi	roet	2-dict. raisel	3-000	allor 24th	dilor 11.1	action 1.1.2.4	achion richio	oction righter	office 2.3-mit	or instantion
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 EPA Regional Screening Lev	vel (1)	NE	4.82	INE 197	25	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 B	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 Backgro Lee Acres RI/ROD Remedia	und Concentration (3) I Goals (4)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.0	100	NE	NE	NE	NE	NE	5.0	NE	NE	1.0
GBR Background Concentra	ations (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
	Oct-86 Dec-88	nd	nd	nd	nd	nd	nd									nd nd							nd	nd	nd nd	nd nd			nd nd	nd nd	nd	nd		nd
GBR-15	Jan-95	nd	nd		nd		nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
	Jan-00 Feb-21	nd <1.0	nd <1.0	<1.0	nd <1.0	nd <1.0	nd <1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	nd <3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	nd <2.0	nd <1.0	nd <1.0	nd <1.0	<1.0	<1.0	nd <1.0	nd <1.0	nd <1.0	nd <1.0	<2.0	<1.0
	Jun-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
	Dec-00	nd	nd		nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-17	Dec-05 Jap-10	nd <1.0	nd <1.0	<1.0	nd <1.0	nd <1.0	nd <1.0	<1.0	<2.0		<1.0	<10		<1.0	 <10	nd <3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nd <2.0	nd <1.0	nd <1.0	nd <1.0	<1.0	<1.0	nd <1.0	nd <1.0	nd <1.0	nd <1.0	~ ~	nd <1.0
	Aug-15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-19 Jan-21	<1.0 <1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10 <10	<1.0	<1.0	<10	<3.0	<3.0 <3.0	<1.0 <3.0	<1.0	<1.0	<1.0	<1.0	<2.0 <2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Jun-86	nd	nd	nd	nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-18*	Jul-94	<0.5	<0.5	1.0	<0.2	<0.2	<0.2									<2.0							<0.2	<0.5	<1.0				<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
GBR-20*	Jun-86 Aug-15	nd	nd	nd 	nd 	nd 	nd 									nd							nd 	nd 	nd	nd 			nd	nd 	nd 	nd		nd
	Feb-21	<5.0	<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	<10	<5.0
GBR-21S*	Jan-21 (Dry)																			-													-	
	May-88 Aug.15																																	
GBR-21D*	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	1.3	<1.0	<10	<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
	May-86																																	
GBR-22*	Aug-15 Jan-21 (Not Sampled, PSH)																																	
GBR-23*	Jan-21 (Dry or Obstructed)																																	
	Nov-86																							nd										
GBR-24S*	Jan-21 (Obstructed)																																	
	Nov-86 Jun-88		nd	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
GBR-24D*	Jan-00 Jan-05	nd	nd		nd 0.50	nd	nd									nd nd							nd	nd nd	nd nd	nd nd			nd nd	nd nd	nd	nd		nd
051(215	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<1.0	<1.0	<2.0	<1.0
	Aug-15 Nov-19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0 <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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	May-86																																	
GBR-25*	Feb-21	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<50	6.8	<5.0	<50	<15	<15	8.5	<5.0	<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	<10	<5.0
	Oct-86			nd	nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd		<u> </u>	nd
GBR-26	Aug-15 Jan-21 (No Recovery)																																	
	Dec-86	nd	nd	nd	nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
	Jun-88	nd	nd	nd	nd	nd	nd									nd							nd	0.61	1.0	nd			nd	nd	0.52	nd		nd
	Jan-95 Jan-00	nd	nd nd-		nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-30	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<1.0	<1.0	<2.0	<1.0
	Aug-15 Nov-19	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0 <3.0	<1.0	<1.0	<1.0	0.1>	<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
	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-86	nd	nd	nd	22	nd	nd									nd							nd	16	nd	nd			12	nd	12	nd		nd
	Jan-95	nd	nd	nu 	4.0 nd	nu 	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-31	Jan-00 Ise-10	nd <1.0	nd <1.0		nd	nd	nd				~~					nd 3.0						<1.0	nd 2.0	1.4	nd	nd <1.0			nd	nd	0.60	nd <1.0		nd <1.0
	Aug-15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-19 Jan-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10 <10	<1.0	<1.0	<10 <10	<3.0	<3.0 <3.0	<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	<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	~1.0	~10	~1.0	~1.0	~10	~		~4.0	~*.0	~1.0	~4.0	~*.0	~ <i>4</i> .0	~	~ 4.0	~4.0	~4.0	~4.0	~4.0	~1.0	~1.W	~1.0	·	- 4 - 5.7

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

			- Market	Manual Color				. 1949 telever	(DC)	ADDITION	Not the Case	ADDERING CELLER		al Harden	on the second			A DESCRIPTION OF THE OWNER				MAR	and the state of t					June	Juene -	Wreethereich	12.0CD	and all and a state of the stat
(all D	mpel		Anile St. AVE	ne mer	s /	ener lene	5- <sup>10</sup> / 41	Street at	ame 25.10	1 <sup>1111</sup> 2.61	chion 2.8th	ion. oht	alet net	sylner mel	Show Stone		Sent on	diction on the	OTT OTT	men mu	none toon	. dist	en	sent inoros	dina ior	forth store	ment hier	iotor dif	JUDION CAL	Addies 1.3	aici o.dit	arone reometh
Unit	<u> </u>		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 3	0	NE	NE	NE	NE	NE	NE	NE	5	NE	NE	100	NE	NE	NE	70	NE	NE	NE
EPA Regional Screening Le	vel (1)	_	4.55	1,100	15 NF	193 NE	143	55.7 NE	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 NE	4.55	77.7	NE	2.21	188	237	250	36.1	4.71	0.00334	8.71
Lee Acres Alluvial Aquifer E	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
Lee Acres RI/ROD Remedia	al 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	70	NE	NE	NE
GBR Background Concentra	ations (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
	Aug-88 Jan-95		nd 0.80	nd	nd	nd				nd	nd						nd	nd	nd			nd nd	nd	nd	3.9	nd			97 120	nd		nd
	Dec-00		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	1.6	nd			10	0.30		nd
GBR-32*	Dec-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd -2.0	nd	nd				nd		nd
	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	<1.0	<2.0	<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	<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
	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-33	Sep-89 Jan-21 (Dry or Obstructed)		nd	nd 	7.9					0.97							nd	nd	nd			nd	nd	nd	nd	nd				nd		nd
	Aug-15		5.2	<5.0	51	49																										
GBR-34	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
GBR-35	Feb-21		<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	<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
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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Jun-88		nd	nd	1.8	nd				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd
GBR-40	Jan-21 (Dry)																															
CDD 41	Jun-88		25	16	474	224				nd							nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd
GBR-41	Jan-21 (Dry)																															
	Nov-88		nd	nd	nd	nd				nd							nd	nd	nd			nd	180	nd	nd	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
GRP 48	Dec-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd				nd		nd
OBK-48	Jan-10 Aue-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	<10	<10	<1.0	<1.0	<2.0	<1.0	<6.0	<1.0	<1.0	<1.0	<1.0	<2.0	<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	<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
	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Nov-88		nd	nd	nd	nd				nd	 ad						nd	nd	nd			nd	nd	nd	6.9	nd			nd 70	nd		nd
	Dec-00		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	1.2	nd			13	0.40		nd
GRP 49	Dec-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd				nd		nd
ODA 45	Jan-10 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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<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	<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
	Jan-21 (Obstructed)																															
	Nov-88		0.80	nd	nd	nd				nd	 nd						nd	nd	nd			nd	nd	nd	0.20	nd			nd 2.3	nd		nd
	Dec-00		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd			0.20	nd		nd
GBR-50	Dec-05		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd -2.0	nd	nd				nd		nd
	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	<1.0	<2.0	<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	<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
	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
	Nov-88 Jan-95		0.80 nd	nd	nd nd	nd				nd	nd						nd	nd	nd			nd	nd	nd	0.70 nd	nd			nd	nd		nd
	Jan-00		nd	nd	nd	nd	nd			nd	nd						nd	nd	nd			nd	nd	nd	nd	nd			nd	nd		nd
GBR-52/GRW-8	Jan-05		nd	nd	nd	nd	nd				nd						nd	nd	nd			nd	nd <1.0	nd	nd	nd			<1.0	nd		nd
	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	<1.0	<2.0	<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	<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
	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	<10	<10	<1.0	<1.0	<2.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
SHS-9	Aug-15 Jan-21		<5.0 <1.0	<5.0	21 5.1	<7.5 <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
SHS-13	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	<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			1	1	1			1	1	1			1			1	1		1	1			1		1		1	1			

 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 Backeround Concentrations Established in Document Titled Hvidrogorby and Water Resources of San Juan Backeround Concentrations Established in Document Titled Hvidrogorby and Water Resources of San Juan Backeround Concentrations Established in Document Titled Hvidrogorby and Water Resources of San Juan Backeround Concentrations 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 allavial aquifer

 --- not tested

 mg/L - miligrams per liter

 mg/L - miligrams per liter

 NE - not testid

 NumQCC - New Mexico Water Quality Control Commission

 PSH - phase separated hydrocarbons

 USEPA - United States Evolution Agency

 BOLD - boil and highlighted cells indicates concentration exceeds the NMWQCC standard, where NMWQCC are not established, concentrations compared to EPA regional screening levels



TABLE 5 GROUNDWATER ANALYTICAL RESULTS - VOLATILE ORGANIC COMPOUNDS

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

		- THE	and the mark	astrenette	Thereader	out the	No ALANDER CLIPS	E .	STROTES .	STRONG .	STRUCTU	MARGINE		-servere	A DUPE	- Anterna	. Chinese	and a	- North	SUPER		- CARLER -	- California		athene RCE	Mattered and and	No. 12. DEC	Instructure	Incommente	Large lime	Large lime	Mare CCD	and the second second	Junger and Alexandre
Nath	amples	inities 2 dit	this with	achier contro	roll Life	ether rate	allo 2.diel	aller 2 die	alo 2-dici	ic Lief	No. spicht	or heren	ou oper	- isopt	R? nett	othyle	ene purght	er prop	ito cours	D	e nitrut	310 1.1.2.4	122	ou mochie	in and i	1.1 Mar 1.3	23.00	24-11	31. 1.1.m	2.10	idhor idhor	ichior	31. 23.me	. milano
Unit	<u> </u>	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	NE	5	NE	NE	NE	100	NE	NE	10	5	100	NE	NE	70	200	5	5	NE	NE	2
EPA Regional Screening Lev	rel (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 Ba	ackground 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 Backgrou	und Concentration (3)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	5.0	INE 100	NE	NE	NE	NE	NE	5.0	NE	NE	1.0
GBR Background Concentral	tions (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
	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							nd	2.9	nd	nd			nd	nd	2.1	nd		nd
GBR-32*	Jan 2010	nd	nd	<1.0	nd	nd <1.0	nd	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	nd	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nd	nd 1.0	nd	nd <1.0	<1.0	<1.0	nd <1.0	nd	nd	nd		nd
	Aug-15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	1.2	<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	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
GBR 33	Sep-89	nd	nd	nd	nd	nd	nd									nd							nd	nd		nd			nd	nd	nd	nd		nd
056-33	Jan-21 (Dry or Obstructed)																																	
GBR-34	Aug-15																																	
054-54	reb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	0.1>	<10	<1.0	<1.0	<10	<3.0	<5.0	<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	<1.0	<2.0	<1.0
GBR-35	Feb-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Jun-88	nd	nd	nd	nd	nd	nd								-	nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-40	Jan-21 (Dry)																																	
	Jun-88	nd	nd	nd	nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-41	Jan-21 (Dry)																																	
	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							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
GBR-48	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	1.3	<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	<2.0	<4.0	<2.0	<2.0	<20	<2.0	<2.0	<20	<6.0	<6.0	<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	<2.0	<2.0	<4.0	<2.0
	Nov-19 Ion-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Jun-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<5.0	<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	<1.0	<2.0	<1.0
	Nov-88 Lim-95	nd	nd	nd	6.8 0.40	nd	nd									nd							nd	15 nd	88 nd	nd			6.6	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
CDD 40	Dec-05	nd	nd		nd	nd	nd									nd							nd	0.60	nd	nd			nd	nd	nd	nd		nd
GBR-49	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	1.6	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Jan-21 (Obstructed)																																	
	Nov-88	nd	nd	nd	0.70	nd	nd									0.30							nd	0.70	0.30	nd			0.60	nd	0.20	nd		nd
	Jan-95	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
GBR-50	Jan-10	<1.0		<1.0			nu <1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	nu <1.0		nu <1.0	<1.0	<1.0	nu <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	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Nov-88	nd	nd	nd	nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
	Jan-95 Jan-00	nd	nd		nd	nd	nd									nd							nd	nd	nd nd	nd			nd	nd	nd	nd		nd
	Jan-05	nd	nd		nd	nd	nd									nd							nd	nd	nd	nd			nd	nd	nd	nd		nd
GBR-52/GRW-8	Jan-10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<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	<10	<1.0	<1.0	<10	<3.0	<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	<1.0	<2.0	<1.0
	Aug-15																																	
SHS-9	Jan-21	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	2.3	<1.0	<1.0	<3.0	<3.0	2.5	<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	<1.0	<2.0	<1.0
SHS-13	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	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0
			1	1	1	1															1													

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 Mnanagement (dated February 1992)
(3) - Regional Background Concentrations Established in Document Titled Hydrogeneoley and Water Resources of San Juan Baskin, New Mexico, Stone et al., dated 1983
(4) - Contaminant Concentrations Established in Document Titled Hydrogeneoley and Water Resources of San Juan Baskin, New Mexico, Stone et al., dated 1983
(4) - Contaminant Concentrations Established in Document Bedfering '' - 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
yell - mitograms per liter
mg1. - mitograms per liter
mg1. - mitograms per liter
MNWQCC - 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 NMWQCC standard, where NMWQCC are not established, concentrations compared to EPA regional screening levels

MB			interesting of the	S. Manman	S. Indertonics	uppere and	Interes and	e	liberty res	5.000	uere or		Justineers	\$ 10 <sup>6</sup>	of worth ever	e-hummere	appere and	A BANDER OF TO	Billing of the state
We	Sate	Poly Pap.	1-111	2111	ACOL	acet.	fluo.	oher	anti	<u>fluo</u> ,	Dyre	bent bent	- chr.y	bent	bent	bent	dibe	ben	inde
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	NE	0.2	NE	NE	NE
EPA Regional Screening Leve	el (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 Ba	ackground Concentration (2)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Backgrou	and 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 Concentrat	10ns (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
	171d1 "2-1	<0.10	<0.10	<u>\0.10</u>	<u>\</u> 0.10	<0.10	<0.10	<0.10	<0.10	<u>\0.20</u>	<u>∖</u> 0.20	<0.10	<0.10	<u>\0.20</u>	<u>∖</u> 0.20	\0.070	<0.10	<0.10	<0.00
CPW 2/CPD 42	Sep-89																		
UK W-2/UBK-42	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
	Jun-86																		
	Jun-88																		
	Jan-00	nd	nd	nd												nd			
GPW 3/GBP 20	Jan-05	nd	nd	nd												nd			
GRW-5/GBR-29	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
	100V-19 Feh-21	<0.50	<0.50	<0.50	<0.50	0.98	4.5	<0.50	0.30	0.32	0.20	<0.50	< 0.50	<0.50	<0.50	<0.00	<0.50	<0.50	<0.30
	1.00-21	0.12	~0.10	~0.10	NU.10	0.50	1.5	~0.10	0.54	0.32	0.27	~0.10	~0.10	~0.20	NU.20	.0.070	~0.10	~0.10	~0.50
GRW-4/GRR-43	Sep-89																		
OK 11 - 7/ ODIC- 4.3	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
	Jun-88																		
GRW-5/ GBR-37	Feb-21	< 0.10	< 0.10	< 0.10	< 0.10	0.22	< 0.10	< 0.10	0.38	< 0.20	0.28	< 0.10	< 0.10	< 0.20	< 0.20	< 0.070	< 0.10	< 0.10	< 0.30
	Jun-88																		
	Jan-00	nd	nd	nd												nd			
	Jan-05	nd	nd	nd												nd			
GRW-6/GBR-44	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
	Nov-86																		
GRW-9/GBR-6	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
	Jun-88																		
GRW-10/GBR-36	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									<0.20			<0.10						
	reb-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
	May-86																		
GRW-12/GBR-28	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

Weath	Sumple Date	20	Jose Annuel	Hare Inthe	And Street Property of the Street	Shapping Street	Landerse Second	and the second	e atent	intere super	Lose Brook	itere over		and the second	e period	Stunetures Perce	e-thorner beer	a Priver diversion	Lamanaces berg	etunestere intere	L.2.2. Compete
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	NE	0.2	NE	NE	NE	
EPA Regional Screening Leve	el (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 B	ackground Concentration (2)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	
Lee Acres Regional Backgrou	and 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	1
GBR Background Concentrat	ions (5)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	4
	Nov-86																				
	Dec-88																				4
GRW-13/GBR-14	Jan-95		nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	4
	Jan-00		nd	nd	nd	-0.10	-0.10	.0.10	.0.10	-0.10	-0.00	.0.20	-0.10	-0.10	-0.20	-0.20	nd	.0.10	.0.10	.0.20	4
	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	}
	Jun-86																				]
GBR-5*	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	]
	Nov-86																				1
GBR-7	Jan-21 (Not Sampled, PSH)																				1
	0.00																				4
	Uct-86																				4
GBR-8	Aug-15																				1
	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	1
																				.5100	1
	Nov-86																				4
GBR-9	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	4
	Nov-86																				]
GBR-10	Jan-21 (Obstructed)																				
	Jun-86																				1
GBR-11	Aug-15																				1
ODIC-11	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	1
	Inc. 96																				4
	Jun-80																				4
GBR-13*	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	1
	130-21		NU.10	0.10	0.20	~0.10	0.24	0.54	NU.10	0.32	0.50	0.50	~0.10	~0.10	NU.1U	NU.10	.0.070	NU.10	NU.10	.0.50	
	Oct-86																				1
	Dec-88																				4
GBR-15	Jan-95																				4
	Jan-00							0.26				0.22									4
	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	4

Walth	Sumerate	POJSTE POR	undere Inte	hippopulate	Street scene	Manuele Second	Antere Boote	e openie	Marger Martin	Self Brook	Bees Spect	- Incold	Justice of Stars	Be Income	olineanters,	S. Munuters	antere line	A competences	et interes
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 3	60	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE
EPA Regional Screening Lev	vel (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 I	Background Concentration (2)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Backgro	ound Concentration (3)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedia	al Goals (4)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentra	ations (5)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Jun-86	,																	
	Dec-88	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
	Dec-00																		
GBR-17	Dec-05																		
051-17	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	0.07	< 0.10	< 0.10	< 0.30
	Jun-86																		
GBR-18*	Jul-94																		
	Mar-21	< 0.10	0.18	< 0.10	< 0.10	< 0.10	0.26	< 0.10	< 0.10	< 0.20	< 0.20	< 0.10	< 0.10	< 0.10	< 0.10	< 0.070	< 0.10	< 0.10	< 0.30
	Jun-86																		
GBR-20*	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
CDD 216*	Jan-21 (Dry)																		
GBR-215*																			
	May-88																		
GBR-21D*	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
	100-21	<0.10	0.54	0.22	~0.10	5.0	2.0	0.20	1.0	0.50	0.04	~U.1U	~0.10	~0.10	~0.10	~0.070	<0.10 	~0.10	~0.50
	May-86																		
GBR-22*	Aug-15																		
	Jan-21 (Not Sampled, PSH)																		
GBR-23*	Jan-21 (Dry or Obstructed)																		
	Nov-86																		
GBR-24S*	Jan-21 (Obstructed)																		
	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			
GBR-24D*	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
	reb-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

weith	Sumerate	POLICIE AND	Manuser I. M.	Hall Street	on head have a serie	undere seens	and the second	e ater	interes astron	Jefe Boots	bere over	book	Justineere Brys	s period	of hore here	entronentere berro	altricite sites	Assemblished Barris	etimestere
Unit		μg/I	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 3	30	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE
EPA Regional Screening Le	evel (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 Backgro	ound Concentration (3)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedia	al Goals (4)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentra	ations (5)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	May-86																		
GBR-25*	Aug-15 Feb-21		0 12	<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
	1'0-21	<0.1	0 1.2	<0.10	<0.10	1.2	2.0	0.00	0.04	0.32	0.90	<0.10	<0.10	<0.10 	<0.10	~0.070	<0.10	<0.10	V0.00
	Oct-86																		
GBR-26	Aug-15																		
	Jan-21 (No Recovery)																		
	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
GBR-30	Jan-00	nd	nd	nd												nd			
CDR-50	Jan-10																		
	Aug-15	<0.5	0 <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	<0.5	0 <0.0	<0.50	<0.50	<0.00	<0.10	<0.00	<0.50	<0.30	<0.30	<0.50	<0.00	<0.50	<0.30	<0.00	<0.50	<0.50	< 0.30
		<0.1	~ ~~~~	.0.10	.0.10	.0.10	.0.10	.0.10		~~~~~~	.0.20		.0.10				.0.10	.0.10	.0.50
	Nov-86																		
	Jun-88																		
	Jan-95	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
GBR-31	Jan-10	nd																	
	Aug-15	<0.5	0 <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	<0.5	0 <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	< 0.1	0 <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
	Aug-88																		
	Jan-95																		
	Dec-00																		
	Dec-05																		
GBR-32*	Jan 2010																		
	Aug-15																		
	Nov-19																		
	Jan-21	<0.1	0 <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
	Sep-89																		
GBR-33	Jan-21 (Dry or Obstructed)																		
	Aug-15																		
GBR-34	Feb-21	< 0.1	0 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
	Eab 21	- 25	220	27	<1.0	47	61	07	16	0.4	77	<1.0	26	<1.0	<1.0	<0.70	<1.0	<1.0	~3.0
GBR-35	reb-21	25	220	51	<1.0	47	01	8/	16	9.4	27	<1.0	2.6	<1.0	<1.0	<0./0	<1.0	<1.0	<3.0

Walth	Same Date	235 <sup>216</sup> - 100	under interesting of the second second	Hall	Notion Providence	undere securi	interes .	r aren	Interest and the	Left Roots	liters Oren	June 19	Justine of Barrier	R <sup>e</sup> Dentri	on the series	S. Monthere book	altrene liber	Ashington and a series	estimories interv
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 3	0	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE	NE	NE
EPA Regional Screening Lev	rel (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 B	ackground Concentration (2)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Backgrou	und Concentration (3)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedia	l Goals (4)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentrat	tions (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
	Jun-88																		
GBR-40	Jan-21 (Dry)																		
GBR-41	Jun-88																		
	Jan-21 (Dry)																		
	Nov-88																		
	Jan-95																		
	Dec-00																		
GBR-48	Dec-05																		
	зап-10 Ард-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																		
	Dec-00																		
	Dec-05																		
GBR-49	Jan-10																		
	Aug-15																		
	Nov-19																		
	Jan-21 (Obstructed)																		
	Nov-88																		
	Jan-95																		
	Dec-00																		
GBR-50	Dec-05																		
	Jan-10																		
	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
	NT 00			-		-	-		-	-				-	-		-	-	-
	Nov-88																		
	Jan-95 Jan-00																		
	Jan-05																		
GBR-52/GRW-8	Jan-10																		
	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

### TABLE 6 GROUNDWATER ANALYTICAL RESULTS - POLYCYCLIC AROMATIC HYDROCARBONS

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

Walth	5-MARE THE	20	Justic Assessed	huncedown of	and the stand the second	3.100 martin accord	undere second	itere puore	e shere	Juners Salars	Leve Revers	intere Oren		Jahren Barre	No. The state	of the state of th	S. Hunninger	althrone diffe
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
NMWQCC Standard				combined 30	)	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	0.2	NE
EPA Regional Screening Lev	vel (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
Lee Acres Alluvial Aquifer B	Background Concentration (2)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres Regional Backgro	und Concentration (3)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
Lee Acres RI/ROD Remedia	l Goals (4)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
GBR Background Concentration	tions (5)		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	Aug-15																	
SHS-9	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
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

#### 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

 $\mu g/L$  - 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



			/												/
Walth	Same Date	_	out Means arsonic	baiun	beryli	un calmun	Juonium	LOUGH HON	Pend	Trange nes	, nerout	d nieke	selenium	silvet	/
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	
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	
EPA Regional Screening Leve	el (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	
Lee Acres Alluvial Aquifer B	ackground 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	
Lee Acres Regional Backgrou	und 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	
Lee Acres RI/ROD Remedial	l Goals (4)		0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	
GBR Background Concentrat	tions (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
	Jun-88														
GRW-1/GBR-38	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	<
	Sep-89														┢
GRW-2/GBR-42	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	<
	Jun-86														┢
	Jun-88														F
	Jan-00														F
	Jan-05											6.8			1
GRW-3/GBR-29	Jan-10														
	Aug-15							0.89		0.69					ſ
	Nov-19							2.3		1.4					1
	Feb-21		0.0013	0.21	< 0.0010	< 0.00050	< 0.0060	3.8	< 0.00050	1.8	< 0.00020	0.0074	< 0.0010	< 0.00050	<
	Sep-89														┢
GRW-4/GBR-43	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	<
	Jun-88	-													⊢
GRW-5/ GBR-37	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	<
															F
	Jun-88														<u> </u>
	Jan-00											1.90			⊢
	Jan-US											1.80			⊢
GRW-6/GBR-44	Δμα 15							15		18					├
	Nov-19							80		59					┢
	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	<
	N 97	-													F
	NOV-86														⊢
GRW-9/GBR-6	Dec-88		<0.0010	0.024	<0.0010	<0.00050	<0.0060		<0.00050	0.52	<0.00020	0.0027	<0.0010	<0.00050	⊢
	100-21		<0.0010	0.034	<0.0010	<0.00050	<0.0000	1.9	<0.00050	0.55	<0.00020	0.0027	<0.0010	<0.00050	<
CDW 10/CDD 26	Jun-88														Ĺ
GKW-10/GBK-36	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	<
	Jun-86														1
GRW-11/GBR-27	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	<



			/												/
Walth	Supple Date	~	na Meas arenic	baium	. heryili	un colmun	Juonium	out iron	Head	nonemer	e necul	A nicke	selection	silve	_
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	
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	
EPA Regional Screening Lev	el (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	(
Lee Acres Alluvial Aquifer B	ackground 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	
Lee Acres Regional Backgro	und 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	
Lee Acres RI/ROD Remedia	l Goals (4)		0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	
GBR Background Concentrat	tions (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
	May-86														
GRW-12/GBR-28	Jun-88														
GRW-12/GBR-20	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	<
	Nov 86														⊢
	Dec-88														
CDW 12/CDD 14	Jan-95														
GRW-13/GBR-14	Jan-00														<u> </u>
	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	<
															Ľ
CPD 5*	Jun-86														⊢
OBK-5	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	<
	Nov-86														
GBR-7	Jan-21 (Not Sampled, PSH)														
	0-1 %														-
	Uct-86														⊢
GBR-8	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	<
			0.002	0.55	(0.0010	<0.00050	<0.0000	52	0.050	5.0	<0.00020	0.010	0.0027	<0.00050	
	Nov-86														
GBR-9	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	<
	Nov-86														
GBR-10	Jan-21 (Obstructed)														
	Jun-86														⊢
CDD 11	Aug-15														<u> </u>
GBR-11	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	<
	Jun-86														_
GBR-13*	Dec-88														⊢
	Feb-21		0.0018	0.042	<0.0010	<0.00050	<0.0060	5.1	0.0048	4.7	<0.00020	0.011	<0.0050	<0.00050	<
	Oct-86														
	Dec-88														
GBR-15	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	<
												1			1



			/												/
Walth	Sante Date	_	and Metals	hailin	. nerjiti	un comiun	chronium	total) iron	Level	IN THE DEC	e nerour	3 nickel		ilited	/
Unit	× ×	Í	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ŕ
NMWOCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	
EPA Regional Screening Leve	el (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	
Lee Acres Alluvial Aquifer B	ackground 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	
Lee Acres Regional Backgrou	and 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	
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	
GBR Background Concentrat	ions (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
ODIC Daekground Concentrat	Jun-86		0.01	nd	nd	nd	nd	nd	nd	nd	nd	0.10		nd	-
	Dec-88														-
	Jan-95														⊢
	Dec-00														
GRP 17	Dec-05											4.4			
OBR-17	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	<
	L., 96			nd	nd	hu	nd	n d	nd	nd		nd		nd	-
	Jui 04			IIU	IId	па	па	IIU	IId	na		na		na	-
GBR-18*	Jul-94			0.040			0.012		0.021		<0.00020	0.020			-
	Midi-21		<0.0050	0.040	<0.0050	<0.0025	0.013	08	0.051	0.23	<0.00020	0.020	<0.0050	<0.0023	<
	Jun-86														
GBR-20*	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	<
GBR-21S*	Jan-21 (Dry)														
	May-88														
GBR-21D*	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	<
	May 86										_				$\vdash$
	Aug 15														-
GBR-22*	Aug-15 Jan-21 (Not Sampled PSH)														⊢
	Jan-21 (Not Sampled, 1 SH)														-
GBR-23*	Jan-21 (Dry or Obstructed)														
GBP 248*	Nov-86		nd	0.10	nd	nd	nd	nd	nd	43		0.60		nd	
001-245	Jan-21 (Obstructed)														
	Nov-86		nd	0.10	nd	nd	nd	nd	nd	43		0.60		nd	
	Jun-88														
	Jan-95														
	Jan-00														
GBR-24D*	Jan-05											9.2			
2211 212	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	<
1		1	1	1		1		1	1	1		1	1		<u> </u>



												/			/
Walth	Sante Date	_~	out Means	Datiun	berjili	un contribut	Juonium	orall iron	Long	Transferrer	e netch	A nickel	-sieniun	ilve	_
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	
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	
EPA Regional Screening Leve	el (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	
Lee Acres Alluvial Aquifer Ba	ackground 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	
Lee Acres Regional Backgrou	and 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	
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	
GBR Background Concentrat	ions (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
	May-86														
GBR-25*	Aug-15														
021125	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	<
	Oct-86														
GBR-26	Aug-15														
	Jan-21 (No Recovery)													au au au	
	Dec-86		nd	nd	nd	0.19	nd	nd	nd	2.2		nd		nd	⊢
	Jun-88														
	Jan-95														
	Jan-00														
GBR-30	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	<
	Nov-86														⊢
	Jun-88														-
	Jan-95														
	Jan-00														<u> </u>
GBR-31	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	<
	Aug-88														
	Jan-95														
	Dec-00														
CDF	Dec-05											9.00			Ē
GBR-32*	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	<
	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	<
	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	<
	Sep-89														
GBR-33	Jan-21 (Dry or Obstructed)														<u> </u>
1	· · · /														



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Wall	5ambe Date	 na Meas	Datiun	berylin	un cohrinn	Juonium	totall iton	Vend	Distriction of the second	e necur	interest in the second	selenium	silver	_
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	⊢
NMWQCC Standard		0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	⊢
EPA Regional Screening Lev	rel (1)	0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	<u> </u>
Lee Acres Alluvial Aquifer B	ackground 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	⊨
Lee Acres Regional Backgrou	und 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	⊨
Lee Acres RI/ROD Remedial	l Goals (4)	0.05	1.0	NE	0.010	0.113	16	0.050	0.346	0.002	0.20	0.010	0.05	⊢
GBR Background Concentrat	tions (5)	NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
GBR-34	Aug-15													<u> </u>
ODIC 01	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	<
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	<
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	(
	Jun-88													
GBR-40	Jan-21 (Dry)													
	Jun-88													
GBR-41	Jan-21 (Dry)													
	N= 99													F
	Ian 95													⊢
	Dec 00													-
	Dec-05										10.0			
GBR-48	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	
	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	
	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	(
	Nov 88	<u> </u>												⊢
	Jan-95													┢
	Dec-00													
	Dec-05										<20			
GBR-49	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	<
	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	<
	Jan-21 (Obstructed)													
	Nov-88													-
	Jan-95													
	Dec-00													
	Dec-05										10			
GBR-50	Jan-10													
	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	<
	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	<
	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	<
1	1			1	1	1	1	1	1			1	1	1



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

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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	
NMWQCC Standard			0.1	2	0.004	0.005	0.05	1	0.015	0.2	0.002	0.2	0.05	0.05	
EPA Regional Screening Leve	el (1)		0.000517	3.77	0.0246	0.0092	22.5	14	0.015	0.434	0.000626	0.392	0.0998	0.0941	(
Lee Acres Alluvial Aquifer Ba	ackground 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	
Lee Acres Regional Backgrou	and 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	
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	
GBR Background Concentrat	ions (5)		NE	NE	NE	NE	1.29	97.8	NE	5.28	NE	NE	NE	NE	
	Nov-88														
	Jan-95														
	Jan-00														
CDD 52/CDVU 0	Jan-05											2.0			
GBR-52/GRW-8	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	<(
	Aug-15														
SHS-9	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	<(
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	<

#### 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 Concentration Project in Dec Peters Divid T Reinedia Integration Report Project in the OS Database Can 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



	FORMER GIANT BLOOMFIELD REFINERY WESTERN REFINING SOUTHWEST, LLC SAN JUAN COUNTY, NEW MEXICO													
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, ID	ate Date		al Chemit			M <sup>HE</sup>		oheds						
Well	Samp	<u>_</u>	enere anoriu	Photo:	nitrate	sulfate	pral di							
Unit			mg/L	mg/L	mg/L	mg/L	mg/L							
NMWQCC Standard	1 (1)		250 NE	1.6	NE	600 NE	1,000							
EPA Regional Screening Le	vel (1)		6.4 - 404	0.799 NE	1.2 - 4.9	420 - 2.120	760 - 3.600							
Lee Acres Regional Backgro	ound Concentration (3)		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE							
Lee Acres RI/ROD Remedia	al Goals (4)		34,000	NE	10	14,000	10,000							
GBR Background Concentr	ations (5)		560	NE	NE	2,800	4,599							
GRW-1/GBR-38	Jun-88													
GKT I/ODK-50	Mar-21		40	0.85	<0.50	2,100	3,540							
GRW-2/GPD 42	Sep-89													
UK W-2/UDK-42	Feb-21		100	0.59	< 0.50	660	1,880							
	Jun-86													
GRW-3/GBR-29	Jun-88													
	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							
CDW 4/CDD 42	Sep-89													
GRW-4/GBR-43	Feb-21		120	1.10	< 0.50	1,300	2,790							
	Jun-88													
GRW-5/ GBR-37	Feb-21		91	1.0	< 0.50	1,500	2,790							
	Jun-88													
	Jan-00		162			395	1,680							
	Jan-05		96			440	1,600							
GRW-6/GBR-44	Jan-10			0.55			3 220							
	Nov-19		94	0.60	<0.50	1,400	2,470							
	Feb-21		97	0.93	< 0.50	1,500	2,570							
	Nov-86													
GRW-9/GBR-6	Dec-88													
	Feb-21		59	< 0.50	< 0.50	1,900	3,260							
	Jun-88													
GRW-10/GBR-36	Feb-21		51	1.1	< 0.50	2,200	3,460	1						
	Jun-86													
GRW-11/GBR-27	Feb-21		29	1.3	< 0.50	2,400	3,880							
	May-86													
GRW-12/GBR-28	Jun-88													
GRW 12/GBR 20	Feb-21		230	0.74	< 0.50	500	1,880							
	Nov-86							1						
	Dec-88							1						
GRW-13/GBR-14	Jan-95													
	Jan-00		264			1,640	510							
	Feb-21		220	0.85	1.5	1,900	3,340							
GRP_5*	Jun-86													
UBK-J*	Feb-21		89	< 0.50	< 0.50	1,700	3,290							
OPP 7	Nov-86													
UBK- /	Jan-21 (Not Sampled, PSH)													

	FORMER GIANT BLOOMFIELD REFINERY WESTERN REFINING SOUTHWEST, LLC SAN JUAN COUNTY, NEW MEXICO												
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(a)ID	-make Date		seril chemistry	-		intrees 1 rate	and disc	o, bred a bits					
Their	Site		mg/I	fitt mg/I	pitr mg/I	şili ma/l	tote mg/I						
Unit			250	1.6	NE.	600	1 000						
EPA Regional Screening L	evel (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 Backg	round Concentration (3)		2 - 34,000	NE	0.10 - 1,640	1.9 - 14,000	NE						
Lee Acres RI/ROD Remed	ial Goals (4)		34,000	NE	10	14,000	10,000						
GBR Background Concent	rations (5)		560	NE	NE	2,800	4,599						
	Oct-86												
GBR-8	Dec-88												
CDIC-0	Aug-15 Eab 21		86	0.50		1 200	2 /20						
	Feb-21		100	0.59	<0.50	1,300	2,430						
	Nov-86												
GBR-9	Aug-88					1.200							
	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						
	Oct-86												
	Dec-88												
GBR-15	Jan-95												
	Jan-00		313			1,210	2,910						
	Feb-21		92	0.94	< 0.10	2,000	3,460						
	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						
GBR-17	Jan-10		40			1,000	2,200						
	Aug-15		43	0.68	5.8	1.100	1.960						
	Nov-19		55	< 0.50	5.2	1,200	2,150						
	Jan-21		52	0.57	5.5	1,300	2,220						
	Jun-86		262			3.141	4,935						
GBP-18*	Jul-94												
ODIC-10	Mar-21		43	< 0.50	1.8	190	5,100						
	Jun-86												
GBP_20*	Aug-15		96										
<b>ODK-</b> 20 <sup>++</sup>	Feb-21		89	0.66	< 0.50	250	1,850						
	Ian. 21 (Dev)												
GBR-21S*	300-21 (D13)												
	May-88												
GBR-21D*	Aug-15		330										
	Feb-21		310	0.66	<0.50	/80	mg/L         1,000         NE         10,000         4,599            2,430            2,430            1,890            1,890            2,380            1,890            1,890            1,890            1,890            1,890            1,890            1,890            1,890            1,930         2,200            1,850            1,850            1,850               1,850						
	May-86												
GBR-22*	Aug-15		470										
	Jan-21 (Not Sampled, PSH)												

	FORMER GIANT BLOOMFIELD REFINERY WESTERN REFINING SOUTHWEST, LLC SAN JUAN COUNTY, NEW MEXICO												
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	he Date		al Chemister 10			inite as		solved sol					
Wellt	Same	6	enere dhoriu	fluorio	pitrate	sulfate	total di						
Unit		-	mg/L	mg/L	mg/L	mg/L	mg/L						
NMWQCC Standard	1 (1)		250 NE	0.700	NE	000 NE	1,000						
EPA Regional Screening Lev	rel (1)		NE	0.799	NE 12.40	NE 420 2 120	NE 760 2.600						
Lee Acres Alluvial Aquifer B	ackground Concentration (2)		2 - 34 000	NE	0.10 - 1.640	420 - 2,120	700 - 5,000 NE						
Lee Acres Regional Backgro	und Concentration (3)		2 - 34,000	NE	10	1.9 - 14,000	10.000						
CBB Baskeround Concentra	tions (5)		560	NE	10 NE	2 800	10,000						
GBR Background Concentra	tions (5)		500	INE	INE	2,800	4,399						
GBR-23*	Jan-21 (Dry or Obstructed)												
	Nov-86		618			943	2,826						
GBR-24S*	Jan-21 (Obstructed)												
	Nov-86		618			943	2,826	1					
	Jun-88		630			1,640	3,487						
	Jan-95												
	Jan-00		610			1,380	3,550						
GBR-24D*	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	3,300						
	May-86												
GBR-25*	Aug-15		520										
	Feb-21		390	0.77	< 0.50	660	2,480						
	Oct-86												
GBR-26	Aug-15		170										
	Jan-21 (No Recovery)												
	Dec-86		133			380	1 308						
	Jun-88		370			2.270	3,996						
	Jan-95												
	Jan-00		310			1,460	3,140						
GBR-30	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						
	Nov-86							1					
	Jun-88							]					
	Jan-95												
CDD 21	Jan-00		181			1,560	3,030						
GBK-31	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		65	0.54	/.1	1,000	2,770						
	Aug-88		588			1,830	4,400						
	Jan-95		569			1,770	3,830						
	Dec-00		735			2,190	4,840						
GBR-32*	Dec-05		520			1,700	4,400						
	Jan 2010		270	0.40	2.1	2,000	2 020						
	Aug-15 Nov. 10		3/0	0.49	<b>3.1</b>	2,000	3,830						
	Jan-2.1		190	0.37	<1.0	1,700	3,200						
				0.01	~***	1,700	5,250						
GBR-33	Sep-89												
ODK 55	Jan-21 (Dry or Obstructed)												

FORMER GIANT BLOOMFIELD REFINERY WESTERN REFINING SOUTHWEST, LLC SAN JUAN COUNTY, NEW MEXICO														
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Wet	Şanı	<u>_</u> e	ene chior	flio1.	pitrat	suffer	rotal.	/						
Unit			mg/L	mg/L	mg/L	mg/L	mg/L							
NMWQCC Standard			250	1.6	NE	600	1,000							
EPA Regional Screening Lev	el (1)		NE	0.799	NE 12.40	NE 420 - 2, 120	NE							
Lee Acres Alluvial Aquifer B	ackground Concentration (2)	-	0.4 - 404	NE	1.2 - 4.9	420 - 2,120	/00 - 3,000 NE							
Lee Acres Regional Backgrou	Goals (4)		34,000	NE	10	14 000	10.000							
GBR Background Concentra	tions (5)		560	NE	NE	2,800	4,599							
Concelluta	Aug-15		280			_,								
GBR-34	Feb-21		270	0.86	< 0.50	49	1,440							
CBD 25	Feb-21		250	0.92	< 0.50	10	1,230							
GBR-35	E-k 21		160	0.54	-0.50	1.000	1,250							
GBR-39	Peb-21		160	0.34	<0.30	1,000	1,800							
GBR-40	Jun-88	_												
	Jan-21 (Dry)													
CDD 41	Jun-88													
GBR-41	Jan-21 (Dry)													
	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							
GBR-48	Jan-10		420			1,500	3,400							
	Aug-15		370	0.45	7.3	2.100	3.730							
	Nov-19		270	< 0.50	1.9	2,000	3,450							
	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							
GDD 10	Dec-05		530			1,900	4,900							
GBR-49	Jan-10													
	Aug-15		180	0.62	<0.10	1,500	2,840							
	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							
GBR-50	Jan-10						2,700							
	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							
GBR-52/GRW-8	Jan-05		67			1,700	2,800							
OBR 52/ORW-0	Jan-10													
	Aug-15		60	0.71	5.7	1,400	2,840							
	Jan-21		56	0.50	7.9	1,500	2,590							
			50	0.04		1,000	2,570							



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 A renzand quoteen of 160 (unit changen) and change from the change provide (and generative from the changen) and change provide (and 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

Walth	Supple Date Supplie	Method	Actific Lough	isonic discont	ed appenie relativ	e percentaliterand	i jun jeson	ed bailing polarity	- Percent difference	Collision dissolt	ed ber jum	e perent different	Internet Strange	- Californian - Relativ	e person liference	un instruction	ponium	e Porcon difference	n jiesofr	ad iron relativ	e poronaliterand	ad dissolve	deed resire	Provi Mercet
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 Screeni	ing 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 Aq	quifer 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 B	ackground 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 Re	emedial 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 Con	ncentrations (5)		NE	NE		NE	NE		NE	NE		NE	NE		1.29	1.29		97.8	97.8		NE	NE		
	Jan-21 Bailer		< 0.0010			0.014			< 0.0010			< 0.00050			0.011			0.79			0.00064			
GBR-17	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%			
	Jan-21 Bailer		0.0013			0.028			< 0.0010			< 0.00050			0.33			8.30			0.0011			
GBR-32 (6)	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%			
	Jan-21 Bailer		0.0050			0.20			0.00200			< 0.00050			0.050			29			0.016			
GBR-48	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%			
	Jan-21 Bailer		< 0.0010			0.012			< 0.0010			< 0.00050			0.035			2.5			0.0068			
GBR-50	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

WellD	Sample Dat	e santint	Method	and the second	egene incorrect	nunspiese notain	Decontification	a dissolution	ad hicked	. Perent life out	Burn Browned	a and a second	open the open and the open and	itrophed 3	 2 Percon difference	a disolet	analium paire	percenté Gé	interest	Pueste	e stereer	Buttle as the subject	itest	ed organic show	and wells
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	1
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	1
EPA Regional Screen	ing 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	1
Lee Acres Alluvial Ac	quifer Background Co	ncentration (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	1
Lee Acres Regional B	ackground Concentra	tion (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	1
Lee Acres RI/ROD Re	emedial 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	1
GBR Background Cor	ncentrations (5)			5.28	5.28		NE	NE		NE	NE		NE	NE	 NE	NE			560	NE	NE	2,800	NE	4,599	1
	Jan-21	Bailer		0.014			0.0056			0.0030			< 0.00050		 < 0.00025				52	0.57	5.5	1,300		2,220	1
GBR-17	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	1
	relative percer	nt difference**		7%			-120%			24%					 										1
	Jan-21	Bailer		1.1			0.061			0.0044			< 0.00050		 < 0.00025				170	0.37	<1.0	1,900		3,230	1
GBR-32 (6)	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	1
	relative percer	nt difference**		58%			-3%			-55%					 										1
	Jan-21	Bailer		0.67			0.068			0.02			< 0.00050		 0.00038				290	0.39	2.1	2,100		3,720	1
GBR-48	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	1
	relative percer	nt difference**		-55%			-16%			-29%					 -101%										1
	Jan-21	Bailer		0.16			0.013			0.010			< 0.00050		 < 0.00025				60	0.56	2.4	2,100		3,100	1
GBR-50	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	1
	relative percer	nt difference**		-160%			-161%			10%					 										

Notes:

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

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\* - 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

													(per A	Detections gency's reques	st)	
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	Proposed Background Threshold Values (BTVs)
Chloride	mg/L	48	0	0	48	NA	Non-Parametric\Max	43	560	218.4	148					560
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
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
Manganese	mg/L	32	0	0	32	NA	Lognormal	0.041	6.4	1.187	1.416					5.28
Sulfate	mg/L	48	0	0	48	NA	Non-Parametric\Max	190	2,800	1,776	405.6					2,800
Total Dissolved Solids	mg/L	48	0	0	48	NA	Normal	1,460	5,100	3,265	645.2					4,599

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

#### Comments

No Change. Dataset do not follow a discernible distribution, use Max value as UTL 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 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 Calculated UTL based on Gamma distribution with HW approximation

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

with HW approximation Dataset do not follow a discernible distribution, use Max value as UTL

Low coefficient of variation, use UTL based on normal distribution

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

OrderNo.: 2102004

RE: 2021 Giant Former Refinery

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,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 2/15/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102004-001 Lab ID:

Client Sample ID: GBR-50 Collection Date: 1/29/2021 11:38:00 AM 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	МН
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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в Е Value above quantitation range

J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

Page 1 of 37

S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102004-001 Lab ID:

Client Sample ID: GBR-50 Collection Date: 1/29/2021 11:38:00 AM

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

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM					Analys	t: 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					Analys	t: 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	ua/L	1	2/8/2021 7:01:17 PM	A75144

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

Project: Lab ID:	2021 Giant Former Refinery 2102004-001	Collection Date: 1/29/2021 11:38:00 AM           Matrix: AQUEOUS         Received Date: 1/30/2021 9:15:00 AM								
Analyses		Result	RL	Qual Unit	ts DF	Date Analyzed	Batch			
EPA ME	THOD 8260B: VOLATILES					Analys	t: JMR			
1,3-Dich	lorobenzene	ND	1.0	µg/L	1	2/8/2021 7:01:17 PM	A75144			
1,4-Dich	lorobenzene	ND	1.0	µg/L	1	2/8/2021 7:01:17 PM	A75144			
Dichloro	difluoromethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1-Dich	loroethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1-Dich	loroethene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,2-Dich	loropropane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,3-Dich	loropropane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
2,2-Dich	loropropane	ND	2.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1-Dich	loropropene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Hexachle	orobutadiene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
2-Hexan	one	ND	10	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Isopropy	lbenzene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
4-Isopro	pyltoluene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
4-Methy	I-2-pentanone	ND	10	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Methyler	ne Chloride	ND	3.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
n-Butylb	enzene	ND	3.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
n-Propyl	benzene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
sec-Buty	lbenzene	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-Buty	lbenzene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1,1,2-1	Fetrachloroethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1,2,2-1	Fetrachloroethane	ND	2.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Tetrachl	oroethene (PCE)	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
trans-1,2	2-DCE	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
trans-1,3	3-Dichloropropene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,2,3-Tri	chlorobenzene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,2,4-Tri	chlorobenzene	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1,1-Tri	chloroethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,1,2-Tri	chloroethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Trichloro	pethene (TCE)	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Trichloro	ofluoromethane	ND	1.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
1,2,3-Tri	chloropropane	ND	2.0	µg/L	. 1	2/8/2021 7:01:17 PM	A75144			
Vinyl chl	oride	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 7	70-130	%Re	ec 1	2/8/2021 7:01:17 PM	A75144			
Surr:	4-Bromofluorobenzene	99.2 7	70-130	%Re	ec 1	2/8/2021 7:01:17 PM	A75144			
Surr:	Dibromofluoromethane	103 7	70-130	%Re	ec 1	2/8/2021 7:01:17 PM	A75144			
Surr:	Toluene-d8	95.5 7	70-130	%Re	ec 1	2/8/2021 7:01:17 PM	A75144			

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Client Sample ID: GBR-50

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 Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/15/2021

#### **CLIENT:** Western Refining Southwest, Inc. **Client Sample ID: GBR-48** Collection Date: 1/29/2021 12:06:00 PM **Project:** 2021 Giant Former Refinery Lab ID: 2102004-002 Matrix: AQUEOUS Received Date: 1/30/2021 9:15:00 AM Result **RL** Oual Units **DF** Date Analyzed Batch Analyses EPA 200.8: METALS Analyst: bcv Arsenic 0.0050 0.0010 mg/L 1 2/3/2021 10:57:52 AM 57858 Bervllium 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 2/3/2021 10:57:52 AM 57858 1 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 2/3/2021 10:57:52 AM 57858 1 **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 20 2/2/2021 12:30:12 PM mg/L 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 2.5 57858 Iron 29 mg/L 2/4/2021 10:40:43 AM 50 \* 0.67 0.0020 mg/L 2/4/2021 8:55:27 AM 57858 Manganese 1 **EPA METHOD 245.1: MERCURY** Analyst: ags Mercury ND 0.00020 2/5/2021 12:57:15 PM 57882 mg/L 1 **EPA METHOD 8270SIM** Analyst: DAM Naphthalene ND 2/5/2021 6:48:00 AM 57841 0.10 µg/L 1 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 57841 1 2/5/2021 6:48:00 AM Acenaphthene ND 0.10 µg/L 1 2/5/2021 6:48:00 AM 57841 ND Fluorene 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 ND 57841 Anthracene 0.10 µg/L 1 2/5/2021 6:48:00 AM Fluoranthene ND 0.20 µq/L 1 2/5/2021 6:48:00 AM 57841

#### Hall Environmental Analysis Laboratory, Inc.

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

0.20

0.10

0.10

0.10

0.10

ND

ND

ND

ND

ND

**Qualifiers:** 

Pyrene

Chrysene

Benz(a)anthracene

Benzo(b)fluoranthene

Benzo(k)fluoranthene

\* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL Practical Quanitative Limit в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

µg/L

µg/L

µg/L

µg/L

µg/L

1

1

1

1

1

Р Sample pH Not In Range

RL Reporting Limit Page 4 of 37

57841

57841

57841

57841

57841

2/5/2021 6:48:00 AM

% Recovery outside of range due to dilution or matrix S

Date Reported: 2/15/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

Lab ID:

Client Sample ID: GBR-48 Collection Date: 1/29/2021 12:06:00 PM

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	ua/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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

<b>CLIENT:</b>	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		<b>Received Dat</b>	<b>e:</b> 1/3	30/2021 9:15:00 AM						
Analyses	3	Result	RL	Qual Units	DF	Date Analyzed	Batch					
EPA MET	THOD 8260B: VOLATILES					Analys	t: JMR					
1,3-Dich	lorobenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,4-Dich	lorobenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Dichloro	difluoromethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1-Dich	loroethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1-Dich	loroethene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,2-Dich	loropropane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,3-Dich	loropropane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
2,2-Dich	loropropane	ND	2.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1-Dich	loropropene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Hexachle	orobutadiene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
2-Hexan	ione	ND	10	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Isopropy	lbenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
4-Isopro	pyltoluene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
4-Methyl	I-2-pentanone	ND	10	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Methyler	ne Chloride	ND	3.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
n-Butylb	enzene	ND	3.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
n-Propyl	benzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
sec-Buty	/lbenzene	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-Buty	lbenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1,1,2-1	Tetrachloroethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1,2,2-1	Tetrachloroethane	ND	2.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Tetrachle	oroethene (PCE)	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
trans-1,2	2-DCE	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
trans-1,3	3-Dichloropropene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,2,3-Tri	chlorobenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,2,4-Tri	chlorobenzene	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1,1-Tri	chloroethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,1,2-Tri	chloroethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Trichloro	bethene (TCE)	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Trichloro	ofluoromethane	ND	1.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
1,2,3-Tri	chloropropane	ND	2.0	µg/L	1	2/8/2021 7:30:01 PM	A75144					
Vinyl chl	loride	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 7	70-130	%Rec	1	2/8/2021 7:30:01 PM	A75144					
Surr: 4	4-Bromofluorobenzene	95.7 7	70-130	%Rec	1	2/8/2021 7:30:01 PM	A75144					
Surr: I	Dibromofluoromethane	105 7	70-130	%Rec	1	2/8/2021 7:30:01 PM	A75144					
Surr:	Toluene-d8	102 7	70-130	%Rec	1	2/8/2021 7:30:01 PM	A75144					

# Hall Environmental Analysis Laboratory, Inc.

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

- D Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/15/2021

<b>CLIENT:</b> Western Refining Southwest, Inc.	Client Sample ID: GBR-32										
Project: 2021 Giant Former Refinery		(	Collect	ion Dat	e: 1/2	29/2021 12:32:00 PM					
Lab ID: 2102004-003	Matrix: AQUE	OUS	Recei	ved Dat	e: 1/3	80/2021 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 SOLI	os					Analyst:	МН				
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				

Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102004-003

Client Sample ID: GBR-32 Collection Date: 1/29/2021 12:32:00 PM

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

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM					Analysi	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

Matrix: AQUEOUS

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

**Qualifiers:** 

\* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

Date Reported: 2/15/2021

<b>Project:</b> 2021 Giant Former Refinery	<b>Collection Date:</b> 1/29/2021 12:32:00 PM									
Lab ID: 2102004-003	Matrix: AQUEOUS		Received Dat	e: 1/3	30/2021 9:15:00 AM					
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch				
EPA METHOD 8260B: VOLATILES					Analys	t: 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	µq/L	1	2/8/2021 7:58:42 PM	A75144				
trans-1,3-Dichloropropene	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
1,2,3-Trichlorobenzene	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
1,2,4-Trichlorobenzene	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
1,1,1-Trichloroethane	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
1,1,2-Trichloroethane	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
Trichloroethene (TCE)	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
Trichlorofluoromethane	ND	1.0	µq/L	1	2/8/2021 7:58:42 PM	A75144				
1.2.3-Trichloropropane	ND	2.0	µq/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				

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-32

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 Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

- Е Value above quantitation range
- J Analyte detected below quantitation limits Р Sample pH Not In Range
- RL Reporting Limit

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Date Reported: 2/15/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102004-004

Lab ID:

Client Sample ID: GBR-17 Collection Date: 1/29/2021 12:53:00 PM 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	МН
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

Matrix: AQUEOUS

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

\* **Qualifiers:** 

D Sample Diluted Due to Matrix

Value exceeds Maximum Contaminant Level. Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102004-004

Client Sample ID: GBR-17 Collection Date: 1/29/2021 12:53:00 PM

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

Matrix: AQUEOUS

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

**Qualifiers:** 

\* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Р

S % Recovery outside of range due to dilution or matrix

в Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Sample pH Not In Range

RL Reporting Limit

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2/8/2021 8:27:19 PM

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Hall Er	nvironmental Analysis	Laboratory, Inc	•				Date Reported: 2/15/202	21
CLIENT: Project: Lab ID:	Western Refining Southwest, Inc 2021 Giant Former Refinery 2102004-004	Matrix: AQUEOUS	Cl (	lient Sa Collect Recei	ample I ion Dat ved Dat	<b>D:</b> Gl te: 1/2 te: 1/3	BR-17 29/2021 12:53:00 PM 30/2021 9:15:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 8260B: VOLATILES						Analyst	JMR
1,3-Dichl	lorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,4-Dichl	lorobenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichl	loroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichl	loroethene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,2-Dichl	loropropane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,3-Dichl	loropropane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2,2-Dichl	loropropane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1-Dichl	loropropene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Hexachlo	probutadiene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
2-Hexan	one	ND	10		µg/L	1	2/8/2021 8:27:19 PM	A75144
Isopropy	lbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
4-Isoprop	pyltoluene	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
Methyler	ne Chloride	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
n-Butylbe	enzene	ND	3.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
n-Propyll	benzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
sec-Buty	Ibenzene	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-Buty	lbenzene	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,1,2-T	etrachloroethane	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
1,1,2,2-T	etrachloroethane	ND	2.0		µg/L	1	2/8/2021 8:27:19 PM	A75144
Tetrachlo	proethene (PCE)	ND	1.0		µg/L	1	2/8/2021 8:27:19 PM	A75144

ND

81.6

99.8

98.9

99.1

1.0

1.0

1.0

1.0

1.0

1.0

1.0

1.0

2.0

1.0

1.5

70-130

70-130

70-130

70-130

µg/L

%Rec

%Rec

%Rec

%Rec

1

1

1

1

1

1

1

1

1

1

1

1

1

1

1

#### ---

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

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

Surr: Toluene-d8

Surr: 1,2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Surr: Dibromofluoromethane

Vinyl chloride

Xylenes, Total

- D Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range J
- Analyte detected below quantitation limits Р Sample pH Not In Range
- RL Reporting Limit

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A75144

Date Reported: 2/15/2021

CLIENT: Western Refining Southwest, Inc.		Cl	ient Sa	ample I	D: GE	3R-52	
<b>Project:</b> 2021 Giant Former Refinery			Collect	ion Dat	<b>:e:</b> 1/2	29/2021 1:19:00 PM	
Lab ID: 2102004-005	Matrix: AQUE	OUS	Recei	ved Dat	e: 1/3	80/2021 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 SOLI	DS					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

Hall Environmental Analysis Laboratory, Inc.

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

\* **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

Value exceeds Maximum Contaminant Level.

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102004-005

Client Sample ID: GBR-52 Collection Date: 1/29/2021 1:19:00 PM

**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

Matrix: AQUEOUS

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

Qualifiers:

\* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method BlankE Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

<b>CLIENT:</b>	Western Refining Southwest, In	c. Client Sample ID: GBR-52									
Project:	2021 Giant Former Refinerv		Collection Date: 1/29/2021 1:19:00 PM								
Lab ID:	2102004-005	Matrix: AQUEOUS		Recei	ved Dat	t <b>e:</b> 1/3	30/2021 9:15:00 AM				
Analyses	5	Result	RL	Qual	Units	DF	Date Analyzed	Batch			
EPA MET	THOD 8260B: VOLATILES						Analys	t: JMR			
1,3-Dich	lorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,4-Dich	lorobenzene	ND	1.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1-Dich	loroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,2-Dich	loropropane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,3-Dich	loropropane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
2,2-Dich	loropropane	ND	2.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1-Dich	loropropene	ND	1.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
Hexachle	orobutadiene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
2-Hexan	ione	ND	10		µg/L	1	2/8/2021 8:55:58 PM	A75144			
Isopropy	lbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
4-Methy	I-2-pentanone	ND	10		μg/L	1	2/8/2021 8:55:58 PM	A75144			
Methyler	ne Chloride	ND	3.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
n-Butylb	enzene	ND	3.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
n-Propyl	benzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
sec-Buty	lbenzene	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-Buty	lbenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1,1,2-1	Tetrachloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1,2,2-1	Tetrachloroethane	ND	2.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
Tetrachl	oroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
trans-1.2	2-DCE	ND	1.0		ua/L	1	2/8/2021 8:55:58 PM	A75144			
trans-1.3	3-Dichloropropene	ND	1.0		ua/L	1	2/8/2021 8:55:58 PM	A75144			
1,2,3-Tri	chlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,2,4-Tri	chlorobenzene	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1,1-Tri	chloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
1,1,2-Tri	chloroethane	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
Trichloro	pethene (TCE)	ND	1.0		µg/L	1	2/8/2021 8:55:58 PM	A75144			
Trichloro	ofluoromethane	ND	1.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
1,2,3-Tri	chloropropane	ND	2.0		μg/L	1	2/8/2021 8:55:58 PM	A75144			
Vinyl chl	loride	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			

# Hall Environmental Analysis Laboratory, Inc.

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 15 of 37

Date Reported: 2/15/2021

<b>CLIENT:</b> Western Refining Southwest, Inc.		Cl	ient Sa	ample I	D: SH	IS-13				
Project: 2021 Giant Former Refinery	Collection Date: 1/29/2021 1:38:00 PM									
Lab ID: 2102004-006	Matrix: AQUE	OUS	Recei	ved Dat	e: 1/3	80/2021 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 SOLI	os					Analyst:	МН			
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			

# Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 16 of 37

S % Recovery outside of range due to dilution or matrix

Date Reported: 2/15/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102004-006

Client Sample ID: SHS-13 Collection Date: 1/29/2021 1:38:00 PM

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

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM					Analys	t: 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					Analys	t: 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

Matrix: AQUEOUS

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

**Qualifiers:** 

\* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

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RL Reporting Limit

Date Reported: 2/15/2021

<b>Project:</b> 2021 Giant Former Refinery		(	Collection Dat	e: 1/2	29/2021 1:38:00 PM	
Lab ID: 2102004-006	Matrix: AQUEOUS		Received Dat	e: 1/.	30/2021 9:15:00 AM	
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

# Client Sample ID: SHS-13

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 Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

- Е Value above quantitation range J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit Page 18 of 37

Date Reported: 2/15/2021

Batch

57858

57858

57858

57858

57858

57858

57858

57858

R75020

R75020

R75020

R75020

#### 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** Oual Units **DF** Date Analyzed EPA 200.8: METALS Analyst: bcv Arsenic ND 0.0010 mg/L 1 2/4/2021 11:05:37 AM Beryllium ND 0.0010 mg/L 1 2/4/2021 11:05:37 AM Cadmium ND 0.00050 mg/L 1 2/4/2021 11:05:37 AM Lead 0.0032 0.00050 mg/L 2/4/2021 11:05:37 AM 1 Nickel 0.011 0.0010 mg/L 1 2/4/2021 11:05:37 AM Selenium ND 0.0010 mg/L 1 2/4/2021 11:05:37 AM Silver ND 0.00050 mg/L 1 2/4/2021 11:05:37 AM Thallium ND 0.00025 mg/L 1 2/4/2021 11:05:37 AM Analyst: JMT **EPA METHOD 300.0: ANIONS** Fluoride 0.74 0.50 mg/L 5 2/2/2021 2:51:44 PM Chloride 130 20 2/2/2021 3:04:36 PM 10 mg/L Sulfate 26 2.5 mg/L 5 2/2/2021 2:51:44 PM Nitrate+Nitrite as N ND 1.0 mg/L 5 2/3/2021 12:43:46 AM SM2540C MOD. TOTAL DISSOLVED SOLIDS Analyst: MH

						Analysi	
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:** 

D Sample Diluted Due to Matrix

Value exceeds Maximum Contaminant Level. Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit В Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 19 of 37

% Recovery outside of range due to dilution or matrix S

Date Reported: 2/15/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102004-007

Client Sample ID: SHS-9 Collection Date: 1/29/2021 1:53:00 PM

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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range

Page 20 of 37

RL Reporting Limit

Date Reported: 2/15/2021

Project:	2021 Giant Former Refinery		(	Collect	ion Dat	t <b>e:</b> 1/2	29/2021 1:53:00 PM	
Lab ID:	2102004-007	Matrix: AQUEOUS		Receiv	ved Dat	t <b>e:</b> 1/.	30/2021 9:15:00 AM	
Analyses	8	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA ME	THOD 8260B: VOLATILES						Analyst	: JMR
1,3-Dich	llorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,4-Dich	lorobenzene	ND	1.0		μg/L	1	2/8/2021 9:53:15 PM	A75144
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dich	loroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2-Dich	loropropane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,3-Dich	loropropane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2,2-Dich	loropropane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1-Dich	loropropene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Hexachl	orobutadiene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
2-Hexar	none	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Isopropy	lbenzene	2.3	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
4-Methy	I-2-pentanone	ND	10		µg/L	1	2/8/2021 9:53:15 PM	A75144
Methyle	ne Chloride	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
n-Butylb	enzene	ND	3.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
n-Propy	lbenzene	2.5	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
sec-Buty	ylbenzene	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-Buty	lbenzene	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
Tetrachl	oroethene (PCE)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
trans-1,2	2-DCE	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
trans-1,3	3-Dichloropropene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,3-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,4-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,1-Tr	ichloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,1,2-Tr	ichloroethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Trichlor	pethene (TCE)	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Trichlor	ofluoromethane	ND	1.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
1,2,3-Tr	ichloropropane	ND	2.0		µg/L	1	2/8/2021 9:53:15 PM	A75144
Vinyl ch	loride	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 7	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr:	4-Bromofluorobenzene	98.8 7	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr:	Dibromofluoromethane	97.9 7	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144
Surr:	Toluene-d8	97.3 7	70-130		%Rec	1	2/8/2021 9:53:15 PM	A75144

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: SHS-9** 

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 Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 21 of 37

Date Reported: 2/15/2021

<b>CLIENT:</b>	Western Refining Southwest,	, Inc.	Client Sample ID: GBR-31 Collection Date: 1/29/2021 2:16:00 PM								
Project:	2021 Giant Former Refinery										
Lab ID:	2102004-008	Matrix: AQUE	EOUS	Recei	ved Dat	t <b>e:</b> 1/3	30/2021 9:15:00 AM				
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch			
EPA 200.	8: METALS						Analys	st: <b>bcv</b>			
Arsenic		ND	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858			
Beryllium	1	ND	0.0010		mg/L	1	2/4/2021 11:07:43 AM	57858			
Cadmiun	n	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	n	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 MET	HOD 300.0: ANIONS						Analys	st: <b>JMT</b>			
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+N	Nitrite as N	7.1	1.0		mg/L	5	2/3/2021 12:56:38 AM	R75020			
SM25400	MOD: TOTAL DISSOLVED	SOLIDS					Analys	st: MH			
Total Dis	solved Solids	2770	20.0	*	mg/L	1	2/3/2021 3:02:00 PM	57847			
EPA MET	HOD 200.7: METALS						Analys	st: ELS			
Barium		0.057	0.0030		mg/L	1	2/4/2021 9:29:12 AM	57858			
Chromiu	m	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			
Mangane	ese	0.23	0.0020	*	mg/L	1	2/4/2021 9:29:12 AM	57858			
EPA MET	HOD 245.1: MERCURY						Analys	st: <b>ags</b>			
Mercury		ND	0.00020		mg/L	1	2/5/2021 1:09:23 PM	57882			
EPA MET	HOD 8270SIM						Analys	st: DAM			
Naphtha	lene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
1-Methyl	naphthalene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
2-Methyl	naphthalene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
Acenaph	thylene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
Acenaph	thene	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			
Phenant	hrene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
Anthrace	ene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/5/2021 11:29:00 AM	57841			
Chrysen	e	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			

# Hall Environmental Analysis Laboratory, Inc.

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

0.10

ND

Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

Benzo(k)fluoranthene

**Qualifiers:** 

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

µg/L

Р Sample pH Not In Range

RL Reporting Limit Page 22 of 37

1 2/5/2021 11:29:00 AM 57841

Date Reported: 2/15/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102004-008

Lab ID:

Client Sample ID: GBR-31 Collection Date: 1/29/2021 2:16:00 PM

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. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

Date Reported: 2/15/2021

<b>Project:</b> 2021 Giant Former Refinery	<b>Collection Date:</b> 1/29/2021 2:16:00 PM								
Lab ID: 2102004-008	Matrix: AQUEOUS		Received Dat	e: 1/3	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 7	70-130	%Rec	1	2/8/2021 10:21:43 PM	A75144			
Surr: 4-Bromofluorobenzene	93.3 7	70-130	%Rec	1	2/8/2021 10:21:43 PM	A75144			
Surr: Dibromofluoromethane	97.9 7	70-130	%Rec	1	2/8/2021 10:21:43 PM	A75144			
Surr: Toluene-d8	103 7	70-130	%Rec	1	2/8/2021 10:21:43 PM	A75144			

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-31

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 Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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WO#:	2102004
	15-Feb-21

Client: Project:	Western I 2021 Gia	Refining S nt Former	Southwes	st, Inc. v							
Sample ID:	MB-57858	Samp			Tes	TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Bate	ch ID: 57	858	F	RunNo: <b>75033</b>					
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	ę	SeaNo: 2	648557	Units: ma/L			
Analyta		Desult							0/ 000		Qual
Analyte		Result	PQL	SPK value	SPK Ref val	%REC	LOWLIMIT	HighLimit	%RPD	RPDLIMIt	Quai
Chromium		ND	0.0050								
Iron		ND	0.050								
Manganese		ND	0.0020								
Sample ID:	LLLCS-57858	Samp	Type: LC	SLL	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	BatchQC	Bate	ch ID: 57	858	F	RunNo: 7	5033				
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	S	SeqNo: 2	648559	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	Samp	Type: LC	S	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	LCSW	Batch ID: 57858			RunNo: <b>75033</b>						
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	S	SeqNo: 2	648561	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	Samp	Туре: М	6	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-50	Bate	ch ID: 57	858	F	RunNo: 7	5073				
Prep Date:	2/2/2021	Analysis	Date: 2/	4/2021	S	SeqNo: 2	650011	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:	2102004-001DMS	D Samp	Туре: М	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-50	Bate	ch ID: 57	858	F	RunNo: 7	5073				
Prep Date:	2/2/2021	Analysis	Date: 2/	4/2021	S	SeqNo: 2	650012	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client:	Western R	Refining S	Southwe	st, Inc.							
Project:	2021 Giar	nt Former	Refiner	у							
Sample ID:	2102004-001DMSD SampType: MSD			Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	GBR-50	Batc	h ID: 57	858	F	RunNo: 7	5073				
Prep Date:	2/2/2021	Analysis [	Date: 2/	4/2021	S	SeqNo: 2	650012	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:	Sample ID: 2102004-001DMS SampType: MS					tCode: El	PA Method	200.7: Metals			
Client ID:	<b>GBR-50</b> Batch ID: <b>57858</b>			RunNo: <b>75073</b>							
Prep Date:	2/2/2021	Analysis [	Date: 2/	4/2021	S	SeqNo: 2	650014	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	Samp	Type: MS	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-50	Batc	h ID: 57	858	F	RunNo: 7	5073				
1								11.1.1. 0			
Prep Date:	2/2/2021	Analysis [	Date: 2/	4/2021	5	SeqNo: 2	650018	Units: mg/L			
Prep Date: Analyte	2/2/2021	Analysis [ Result	Date: 2/ PQL	4/2021 SPK value	SPK Ref Val	%REC	650018 LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

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<sup>15-</sup>Feb-21

WO#:	2102004

15-Feb-21

Client: Project:	Western 1 2021 Gia	Refining nt Forme	Southwe r Refiner	st, Inc. Y							
Sample ID:	MB-57858	Samp	Type: ME	BLK	Tes	TestCode: EPA 200.8: Metals					
Client ID:	PBW	Bat	ch ID: 57	858	F	RunNo:	75032				
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	Ş	SeqNo:	2648496	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C 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:	MSLLLCS-57858	Samp	oType: LC	SLL	Tes	TestCode: EPA 200.8: Metals					
Client ID:	BatchQC	Bat	ch ID: 57	858	RunNo: <b>75032</b>						
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	Ś	SeqNo:	2648497	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C 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	3 50	150			
Nickel		ND	0.0010	0.001000	0	89.9	9 50	150			
Selenium		ND	0.0010	0.001000	0	93.0	) 50	150			
Silver		ND	0.00050	0.0005000	0	85.9	9 50	150			
Sample ID:	MSLCS-57858	Samp	Type: LC	s	Tes	tCode: I	EPA 200.8: M	letals			
Client ID:	LCSW	Bat	ch ID: 57	858	F	RunNo:	75032				
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	S	SeqNo:	2648498	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	95.2	2 85	115			
Beryllium		0.025	0.0010	0.02500	0	98.6	85 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	8 85	115			
Selenium		0.025	0.0010	0.02500	0	98.7	7 85	115			
Silver		0.012	0.00050	0.01250	0	99.3	8 85	115			
Thallium		0.012	0.00025	0.01250	0	96.3	8 85	115			

#### Qualifiers:

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

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

Client:	Western Refining Southwest, Inc.										
Project:	2021	Giant Forme	r Refiner	y							
Sample ID:	MSLLLCS-TL-	<b>57858</b> Samp	oType: LC	SLL	Tes	tCode: EF	PA 200.8: N	letals			
Client ID:	BatchQC	Bat	ch ID: 57	858	R	RunNo: <b>7</b>	5032				
Prep Date:	2/2/2021	Analysis	Date: 2/	3/2021	S	SeqNo: 26	648499	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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: Project:	Western 2021 Gi	Refining Southwest, Inc.			
	2021 01				
Sample ID:	MB-57882	SampType: MBLK	TestCode: EPA Method 245.1: Mercury		
Client ID:	PBW	Batch ID: 57882	RunNo: <b>75108</b>		
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:	ample ID: LLLCS-57882 SampType: LCSLL TestCode: EPA Method 245.1: Mercury				
Client ID:	BatchQC	Batch ID: 57882	RunNo: <b>75108</b>		
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: <b>75108</b>		
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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#:	2102004

15-Feb-21	
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Client: Project:		Western Refining S 2021 Giant Former	Southwe Refiner	st, Inc. 'Y							
Sample ID:	MB	Samp	Type: <b>ml</b>	olk	Tes	TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Bato	h ID: <b>R7</b>	5020	R	unNo: <b>75</b>	020				
Prep Date:		Analysis	Date: 2/	2/2021	S	eqNo: 26	648214	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:	D: LCS SampType: Ics			Tes	tCode: EP	A Method	300.0: Anions				
Client ID:	LCSW	Bato	Batch ID: <b>R75020</b>			unNo: <b>75</b>	020				
Prep Date:		Analysis	Date: 2/	2/2021	S	eqNo: 26	48215	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:	МВ	Samp	Type: <b>m</b> l	olk	TestCode: EPA Method 300.0: Anions						
Client ID:	PBW	Bato	h ID: <b>R7</b>	5072	R	unNo: <b>75</b>	072				
Prep Date:		Analysis	Date: 2/	4/2021	S	eqNo: 26	50544	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate		ND	0.50								
Sample ID:	LCS	Samp	Type: Ics	5	Tes	tCode: EP	A Method	300.0: Anions			
Client ID:	LCSW	Bato	h ID: <b>R7</b>	5072	R	unNo: <b>75</b>	072				
Prep Date:		Analysis	Date: 2/	4/2021	S	eqNo: 26	50545	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#: 2102004 15-Feb-21

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

Sample ID: 100ng Ics	SampType: LCS			TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Batch ID: A75144			RunNo: <b>75144</b>						
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			Tes	PA Method	ATILES				
Client ID: PBW	Batch ID: A75144			F	RunNo: 7	5144				
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:

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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

WO#: 2102004 15-Feb-21

Client:WeProject:202	estern Refining S 21 Giant Former	outhwe Refiner	st, Inc. Y									
Sample ID: vsb fridge	SampT	SampType: <b>MBLK</b>			TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batcl	h ID: A7	5144	RunNo: <b>75144</b>								
Prep Date:	Analysis D	Analysis Date: 2/8/2021			SeqNo: <b>2653047</b> Units: μg/L							
Analvte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
4-Chlorotoluene	ND	1.0	0.11114.000	••••••••	,o	201121111		,or a 2		<b>Q</b> UG		
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:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit
| Client:<br>Project: | Wes 2021 | tern Refining Southwest, Inc.<br>I Giant Former Refinery |                                       |
|---------------------|----------|--|---------------------------------------|
| Sample ID: vs       | b fridge | SampType: MBLK   | TestCode: EPA Method 8260B: VOLATILES |
| Client ID: PE       | 3W       | Batch ID: A75144   | RunNo: <b>75144</b>                   |
| Draw Data           |          | Analusia Datas 0/0/0004                                  |                                       |

Prep Date:	Analysis D	Date: 2/	8/2021	S	SeqNo: 2	653047	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:

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- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
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- B Analyte detected in 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 Sou	uthwe	st, Inc.							
Project: 2021 Gi	ant Former R	efine	rv							
			<i>,</i>							
Sample ID: mb-57859	SampTyp	pe: MI	BLK	Tes	tCode: El	PA Method	8270SIM			
Client ID: PBW	Batch I	D: 57	859	F	RunNo: 7	5123				
Prep Date: 2/2/2021	Analysis Dat	te: 2/	/4/2021	5	SeqNo: 2	651788	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: Ics-57859	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSW	Batch I	D: 57	859	F	RunNo: 7	5123				
Prep Date: 2/2/2021	Analysis Dat	te: 2/	/4/2021	S	SeqNo: 2	651789	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: Icsd-57859	SampTyp	pe: LC	SD	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSS02	Batch I	D: 57	859	F	RunNo: 7	5123				
Prep Date: 2/2/2021	Analysis Dat	te: 2/	/4/2021	S	SeqNo: 2	651790	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	SampTy	pe: MI	BLK	Tes	tCode: El	PA Method	8270SIM			
Client ID: PBW	Batch I	D: 57	841	F	RunNo: 7	5123				
Prep Date: 2/2/2021	Analysis Dat	te: 2/	/5/2021	S	SeqNo: 2	651799	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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

% Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank В

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit WO#: 2102004

15-Feb-21

WO#: 2102004

Qual

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15-Feb-21

Client: West	ern Refining So	outhwes	st, Inc.						
<b>Project:</b> 2021	Giant Former	Refiner	у						
Sample ID: mb-57841	SampT	ype: <b>MB</b>	LK	Tes	tCode: E	PA Method	8270SIM		
Client ID: PBW	Batch	ID: 578	341	I	RunNo:	75123			
Prep Date: 2/2/2021	Analysis D	ate: 2/	5/2021	:	SeqNo: 2	2651799	Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit
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		
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: Ics-57841	SampT	ype: LC	s	Tes	tCode: E	PA Method	8270SIM		
Client ID: LCSW	Batch	ID: 578	341	I	RunNo:	75123			
Prep Date: 2/2/2021	Analysis D	ate: 2/	5/2021	:	SeqNo: 2	2651800	Units: µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit
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		
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		
Surr: Nitrobenzene-d5	5.4		5.000		108	26.3	112		
Surr: 2,4,6-Tribromophenol	0		10.00		0	27.7	118		
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

Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank В

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

Reporting Limit RL

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	Batcl	h ID: 578	341	F	RunNo: 7	5123				
Prep Date: 2/2/2021	Analysis D	Date: 2/	5/2021	S	GeqNo: 20	651801	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client:	West	ern Refining S	outhwe	st, Inc.							
Project:	2021	Giant Former	Refiner	у							
Sample ID:	MB-57847	SampT	ype: ME	BLK	Tes	tCode: SI	M2540C MC	D: Total Dise	olved So	lids	
Client ID:	PBW	Batcl	h ID: 57	847	F	RunNo: 7	5038				
Prep Date:	2/2/2021	Analysis D	)ate: <b>2/</b>	3/2021	S	SeqNo: 20	648794	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	SampT	ype: LC	s	Tes	tCode: SI	M2540C MC	DD: Total Diss	olved So	lids	
Client ID:	LCSW	Batcl	n ID: 57	847	F	RunNo: 7	5038				
Prep Date:	2/2/2021	Analysis D	Date: 2/	3/2021	S	SeqNo: 20	648795	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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 F Southwes	Refining t, Inc.	Work	order Nun	nber: 2102004		RcptNo: 1	
Received By:	Juan Ro	jas	1/30/20	021 9:15:00	AM	(Juan Eng)		
Completed By:	Desiree	Dominguez	2/1/202	21 9:22:58	٩M	THE		
Reviewed By:	JR 21	1/21				1-2		
Chain of Cus	stody							
1. Is Chain of C	ustody com	plete?			Yes 🗸	No	Not Present	
2. How was the	sample deli	vered?			Courier			
<u>Log In</u>								
3. Was an atten	npt made to	cool the samp	les?		Yes 🖌	No	NA 🗌	
4. Were all sam	ples receive	d at a tempera	ature of >0° C	to 6.0°C	Yes 🗹	No 🗌		
5. Sample(s) in	proper conta	ainer(s)?			Yes 🖌	No 🗌		
6. Sufficient sam	nple volume	for indicated to	est(s)?		Yes 🗹	No 🗌		
7. Are samples (	except VOA	and ONG) pr	operly preserv	ed?	Yes 🖌	No 🗌		
8. Was preserva	tive added t	o bottles?			Yes 🔊	No V	NA 🗌	
9. Received at le	ast 1 vial wi	th headspace	<1/4" for AQ \	/OA?	Yes 🗹	No 🗌		
10. Were any sar	nple contain	ers received b	oroken?		Yes	No 🔽	# of preserved	
11. Does paperwo	ork match bo	ottle labels?	<b>N</b>		Yes 🗸	No 🗌	bottles checked for pH: 16	ad)
12 Are matrices of	correctly ider	ntified on Chai	, n of Custodv?		Yes V	No 🗌	Adjusted?	eu)
13. Is it clear what	t analyses w	ere requested	?		Yes 🗸		Ye 3	
14. Were all holdin (If no, notify cu	ng times abl	e to be met? authorization )			Yes 🗹	No 🗌	Checked by: Cec 2/1/-	2(
Special Handl	ing (if ap	plicable)						
15. Was client no	tified of all d	liscrepancies	with this order'	?	Yes	No 🗌	NA 🗹	
Person	Notified:	1 <sup>11.11.11.11.11.11.11.11.11.11.11.11.11</sup>	enterioristation de la constante.	Date	:			
By Who	m:			Via:	eMail 🗍	Phone 🗌 Fax	In Person	
Regardi	ing:							
Client Ir	nstructions:		ante-brentha obten wanterhold mod				necessi a na anna an san an a	
16. Additional rer	marks: ad	dael n	0.5ml	to C	070 For	Ph ci	2 cm 2/1/21	
17. <u>Cooler Inf</u> or	mation							
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					

HALL

ANALYSIS LABORATORY

ENVIRONMENTAL

Chair	1-of-CI	ustody Record	Turn-Around	Time:						i						
Client: Mau	ratho	0	K Standard	□ Rush						Ц Ц						
(TICPON N	Arton	1 004	Project Name					(							2	
Mailing Addres	S:	1100	D LEOR	ant For	ner Refinery		4901 F	v Jawkir	n.ww NF	allenvi - Alhi	ronme	Intal.co	ош М 87109			
			Project #:				Tel. 5	05-345	-3975	L L	ax 50	5-345	-4107			
Phone #:										Analy	sis Re	sanba				
email or Fax#:			Project Mana	ger:		()	(0			<sup>⊅</sup> O		(ìn				-
QA/QC Package	à	Level 4 (Full Validation)	Stue	rt Hyd	d	.208) s	PCB's		SMIS	PO₄, S		i92dA\ti	рэ			
Accreditation:	□ Az Cc	ompliance	Sampler: T.	Short, C.	McGinn	BMT /	2808/	(1.40	)/28 J(	' <sup>z</sup> ON		-resen	σεμ			
DKEDD (Type)	PDF		# of Coolers:	5 m		/ 38	səbi	ig po	Slat	10 <sup>3</sup> '	U/	) ш.	+-+			
			Cooler Temp	including CF): 5 C	e Remouth ( °C)	TM	estic	odiəl	8 Me	3r, 1	(AO)	olifo	D			
Date Time	Matrix	Sample Name	Container Type and #	Preservative Type	ALOGODY	X TEX /	08:H41 9 1808	EDB (N	а ендч АЯЭЯ	CI' E' E	x) 0228	D letoT	99C			
1-31-11 11:38	Gali	G18R-50	Various	Various	- 00 -								X			1
1 1304	1 0	GBR-48			200-								×			
1232		668-32			-003								×			
1253		GBR - 17			- 004								$\times$			
1319		GBR - 52			- 205								X			I
1338		SHS-13			- 006						-		$\mathbf{x}$			
1353		0+S-9			- 007								×			
J 1416	Ą	GBR-31	~	$\rightarrow$	- 008								×			
									+							
Date: Time:	Relinquish	ed by:	Received by:	Via:	Date Time	Rema	rks: C	C: S.	LUCI	5.5	ycle	QU	sp.co	3	2.4.02	TO
1.21.61 15%	Palinduish	el y I Ver Y	- UNWUT	W QUA	129/21 1530			÷.	avi	10.0	tion	QC	sp. ce	8	1.6.0	N 2
129/2 1963	WW A	atra Marter		And Property	1/20/21 91.5	C	n tr	5 #	P H		NCC	NUL	smer	J. (OD	5	, 
If necessar	v. samples sub	smitted to Hall Environmental may be subco	ontracted to other ad	credited laboratories	This serves as notice of this	ilidisson	tv Anvs	ub-contra	cted dat	a will be	dearly no	otated on	the analytica	I report.		٦

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### 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-isopropytoluene 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

OrderNo.: 2102074

RE: 2021 Giant Former Refinery

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,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102074-001

Lab ID:

Client Sample ID: GBR-24D Collection Date: 2/1/2021 10:30:00 AM 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	МН
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

Matrix: AQUEOUS

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 1 of 33

Date Reported: 2/12/2021

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102074-001

Client Sample ID: GBR-24D Collection Date: 2/1/2021 10:30:00 AM

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 2 of 33

Date Reported: 2/12/2021

<ul><li>Project: 2021 Giant Former Refinery</li><li>Lab ID: 2102074-001</li></ul>	Matrix: AOUEOUS	Collect Recei	tion Dat ved Dat	e: 2/	1/2021 10:30:00 AM 2/2021 7:30:00 AM	
Analyses	Result	RL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES					Analys	t: 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 7	0-130	%Rec	1	2/9/2021 6:30:36 PM	C75172
Surr: 4-Bromofluorobenzene	99.3 7	0-130	%Rec	1	2/9/2021 6:30:36 PM	C75172
Surr: Dibromofluoromethane	88.2 7	0-130	%Rec	1	2/9/2021 6:30:36 PM	C75172

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-24D

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

70-130

94.4

\* **Qualifiers:** 

Surr: Toluene-d8

Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

1

2/9/2021 6:30:36 PM

Е Value above quantitation range

%Rec

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 3 of 33

C75172

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			Collect	tion Dat	t <b>e:</b> 2/1	1/2021 10:50:00 AM				
Lab ID:	2102074-002	Matrix: AQU	EOUS	Recei	ved Dat	t <b>e:</b> 2/2	2/2021 7:30:00 AM				
Analyses	3	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			
Berylliun	n	0.0010	0.0010		mg/L	1	2/4/2021 11:32:58 AM	57890			
Cadmiur	n	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			
Seleniur	n	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	1	ND	0.00025		mg/L	1	2/4/2021 11:32:58 AM	57890			
EPA ME	THOD 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			
SM25400	C MOD: TOTAL DISSOLVED S	SOLIDS					Analyst	: MH			
Total Dis	ssolved Solids	3150	20.0	*	mg/L	1	2/3/2021 3:10:00 PM	57864			
EPA ME	THOD 200.7: METALS						Analyst	ELS			
Barium		0.33	0.0030		mg/L	1	2/4/2021 9:38:03 AM	57890			
Chromiu	Im	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			
Mangan	ese	0.75	0.0020	*	mg/L	1	2/4/2021 9:38:03 AM	57890			
EPA ME	THOD 245.1: MERCURY						Analyst	: ags			
Mercury		ND	0.00020		mg/L	1	2/9/2021 1:15:00 PM	57968			
EPA ME	THOD 8270SIM						Analyst	DAM			
Naphtha	llene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
1-Methy	Inaphthalene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
2-Methy	Inaphthalene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Acenaph	nthylene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Acenaph	nthene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Fluorene	9	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Phenant	hrene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Anthrace	ene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/4/2021 9:56:00 PM	57859			
Chrysen	e	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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 4 of 33

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102074-002 Lab ID:

Client Sample ID: GBR-30 Collection Date: 2/1/2021 10:50:00 AM

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

110ject. 2021 Glant Pormer Kennery	<b>Concluon Date.</b> 2/1/2021 10.30.00 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					Analys	t: 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			

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinerv

Client Sample ID: GBR-30 Collection Date: 2/1/2021 10:50:00 AM

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

Qualifiers: \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

JAnalyte detected below quantitation limitsPSample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: 2021 Giant Former Refinery

Lab ID:

2102074-003

Client Sample ID: GBR-39 Collection Date: 2/1/2021 11:00:00 AM 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:	МН
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

Matrix: AQUEOUS

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

Qualifiers: \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation rangeJ Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102074-003 Lab ID:

Client Sample ID: GBR-39 Collection Date: 2/1/2021 11:00:00 AM

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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

Project:     2021 Giant Former Refinery       Lab ID:     2102074-003	Matrix: AQUEOUSReceived Date: 2/2/2021 7:30:00 AM								
Analyses	Result	RL (	Qual Units	DF	Date Analyzed	Batch			
EPA METHOD 8260B: VOLATILES					Analys	t: 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			

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 C:nt E-DC D-----

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

Client Sample ID: GBR-39

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project: 2102074-004

Lab ID:

Client Sample ID: GBR-15 Collection Date: 2/1/2021 11:15:00 AM 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:	МН
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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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#### Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102074-004 Lab ID:

Client Sample ID: GBR-15 Collection Date: 2/1/2021 11:15:00 AM

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	ua/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	ua/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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

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RL Reporting Limit

Lab Order 2102074

Date Reported: 2/12/2021

<b>CLIENT:</b> Western Refining Southwest, In	nc.	Cl	lient Sa	ample I	D: Gl	3R-15	
<b>Project:</b> 2021 Giant Former Refinery			Collect	tion Dat	e: 2/1	1/2021 11:15:00 AM	
Lab ID: 2102074-004	Matrix: AQUEOUS		Recei	ved Dat	<b>:e:</b> 2/2	2/2021 7:30:00 AM	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analys	t: 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 7	0-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: 4-Bromofluorobenzene	91.8 7	0-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: Dibromofluoromethane	94.4 7	0-130		%Rec	1	2/9/2021 8:53:50 PM	C75172
Surr: Toluene-d8	98.4 7	0-130		%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 Н

Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range

RL Reporting Limit

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## Hall Environmental Analysis Laboratory, Inc.

#### Date Reported: 2/12/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102074-005

Lab ID:

Client Sample ID: GBR-21D Collection Date: 2/1/2021 11:40:00 AM 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:	МН
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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Sample pH Not In Range

Р RL Reporting Limit

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Date Reported: 2/12/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102074-005 Lab ID:

Client Sample ID: GBR-21D Collection Date: 2/1/2021 11:40:00 AM

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range RL Reporting Limit

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Date Reported: 2/12/2021

Project: Lab ID:	2021 Giant Former Refinery 2102074-005	Collection Date: 2/1/2021 11:40:00 AM       Matrix: AQUEOUS     Received Date: 2/2/2021 7:30:00 AM								
Analyses	5	Result	RL Qu	al Units	DF	Date Analyzed	Batch			
EPA ME	THOD 8260B: VOLATILES					Analys	t: JMR			
1.2-Dich	nlorobenzene	ND	1.0	ua/L	1	2/9/2021 9:22:26 PM	C75172			
1.3-Dich	lorobenzene	ND	1.0	ua/L	1	2/9/2021 9:22:26 PM	C75172			
1.4-Dich	nlorobenzene	ND	1.0	ug/L	1	2/9/2021 9:22:26 PM	C75172			
Dichloro	odifluoromethane	ND	1.0	ug/L	1	2/9/2021 9:22:26 PM	C75172			
1,1-Dich	nloroethane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,1-Dich	loroethene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,2-Dich	nloropropane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,3-Dich	nloropropane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
2,2-Dich	nloropropane	ND	2.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,1-Dich	nloropropene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
Hexachl	lorobutadiene	ND	1.0	μg/L	1	2/9/2021 9:22:26 PM	C75172			
2-Hexar	none	ND	10	μg/L	1	2/9/2021 9:22:26 PM	C75172			
Isopropy	ylbenzene	1.3	1.0	μg/L	1	2/9/2021 9:22:26 PM	C75172			
4-Isopro	pyltoluene	ND	1.0	μg/L	1	2/9/2021 9:22:26 PM	C75172			
4-Methy	/l-2-pentanone	ND	10	μg/L	1	2/9/2021 9:22:26 PM	C75172			
Methyle	ne Chloride	ND	3.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
n-Butylb	penzene	ND	3.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
n-Propy	lbenzene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
sec-But	ylbenzene	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-Buty	lbenzene	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			
Tetrachl	loroethene (PCE)	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
trans-1,2	2-DCE	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
trans-1,3	3-Dichloropropene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,2,3-Tr	ichlorobenzene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,2,4-Tr	ichlorobenzene	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,1,1-Tr	ichloroethane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,1,2-Tr	ichloroethane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
Trichloro	pethene (TCE)	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
Trichlor	ofluoromethane	ND	1.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
1,2,3-Tr	ichloropropane	ND	2.0	µg/L	1	2/9/2021 9:22:26 PM	C75172			
Vinyl ch	loride	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 7	70-130	%Rec	1	2/9/2021 9:22:26 PM	C75172			
Surr:	Toluene-d8	93.1 7	70-130	%Rec	1	2/9/2021 9:22:26 PM	C75172			

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Client Sample ID: GBR-21D Collection Date: 2/1/2021 11:40:00 AM

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

Qualifiers: \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

JAnalyte detected below quantitation limitsPSample pH Not In Range

P Sample pH Not l RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Lab ID:	2021 Giant Former Rennery 2102074-006	Matrix:	AOUEOUS
			•

Client Sample ID: GBR-25 Collection Date: 2/1/2021 12:12:00 PM Received Date: 2/2/2021 7:30:00 AM RL Qual Units DF Date Analyzed

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	МН
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 Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation rangeJ Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102074-006

Client Sample ID: GBR-25 Collection Date: 2/1/2021 12:12:00 PM

Matrix: AQUEOUS Received Dat

**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	ua/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 Quanitative Limit

B Analyte detected in the associated Method Blank
E Value above quantitation range

E Value above quantitation rangeJ Analyte detected below quantitation limits

JAnalyte detected below quantitation limitsPSample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

Hall Environmental Analysis Laboratory,	Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project: 2102074-006

Lab ID:

Client Sample ID: GBR-25 Collection Date: 2/1/2021 12:12:00 PM

Matrix: AQUEOUS

0 I I I

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

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analys	t: 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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Lab Order 2102074

Date Reported: 2/12/2021

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: 2021 Giant Former RefineryLab ID: 2102074-007

Client Sample ID: GBR-34 Collection Date: 2/1/2021 12:30:00 PM 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

Matrix: AQUEOUS

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

Qualifiers: \*

\* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method BlankE 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.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102074-007 Lab ID:

Client Sample ID: GBR-34 Collection Date: 2/1/2021 12:30:00 PM

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. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

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Lab Order 2102074

Date Reported: 2/12/2021

RL Reporting Limit

Lab Order 2102074

Date Reported: 2/12/2021

<b>CLIENT:</b>	Western Refining Southwest, Inc.	Inc. Client Sample ID: GBR-34								
<b>Project:</b>	2021 Giant Former Refinery	Collection Date: 2/1/2021 12:30:00 PM								
Lab ID:	2102074-007	Matrix: AQUEOUS	5	Recei	ved Dat	te: 2/2	2/2021 7:30:00 AM			
Analyses		Result	RL	Qual	Units	DF	Batch			
EPA MET	THOD 8260B: VOLATILES						Analyst	JMR		
1,2-Dich	lorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,3-Dich	lorobenzene	ND	1.0		μg/L	1	2/9/2021 10:19:39 PM	C75172		
1,4-Dich	lorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1-Dich	loroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,2-Dich	loropropane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,3-Dich	loropropane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
2,2-Dich	loropropane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1-Dich	loropropene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Hexachle	orobutadiene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
2-Hexan	one	ND	10		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Isopropy	lbenzene	ND	1.0		μg/L	1	2/9/2021 10:19:39 PM	C75172		
4-Isopro	pyltoluene	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		
Methyler	ne Chloride	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
n-Butylb	enzene	ND	3.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
n-Propyl	benzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
sec-Buty	lbenzene	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-Buty	lbenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1,1,2-T	Fetrachloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1,2,2-T	Fetrachloroethane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Tetrachle	oroethene (PCE)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
trans-1,2	2-DCE	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
trans-1,3	3-Dichloropropene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,2,3-Tri	chlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,2,4-Tri	chlorobenzene	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1,1-Tri	chloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,1,2-Tri	chloroethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Trichloro	pethene (TCE)	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Trichloro	fluoromethane	ND	1.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
1,2,3-Tri	chloropropane	ND	2.0		µg/L	1	2/9/2021 10:19:39 PM	C75172		
Vinyl chl	oride	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	4-Bromofluorobenzene	91.3	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172		
Surr: I	Dibromofluoromethane	89.8	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172		
Surr: <sup>-</sup>	Toluene-d8	96.8	70-130		%Rec	1	2/9/2021 10:19:39 PM	C75172		

#### Hall Environmental Analysis Laboratory, Inc.

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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WO#:	2102074
	12-Feb-21

Client: Project:	Wes 202	tern Refining S I Giant Former	Southwes Refiner	st, Inc. Y							
Sample ID:	MB-57890	Samp	Туре: <b>МЕ</b>	BLK	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	PBW	Bato	h ID: 57	890	F	RunNo: 7	5073				
Prep Date:	2/3/2021	Analysis I	Date: 2/	4/2021	S	SeqNo: 20	649973	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: LLLCS-57890 SampType: LCSLL TestCode: EPA Method 200.7: Metals											
Client ID:	BatchQC	Bato	h ID: 57	890	F	RunNo: 7	5073				
Prep Date:	2/3/2021	Analysis I	Date: 2/	4/2021	S	SeqNo: 20	649975	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	Samp	Type: LC	S	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	LCSW	Bato	ch ID: 57	890	F	RunNo: 7	5073				
Prep Date:	2/3/2021	Analysis I	Date: 2/	4/2021	5	SeqNo: 20	649977	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:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#:	2102074

12-Feb-21

Client:	Western	Refining	Southwe	st, Inc.							
Project:	2021 Gia	nt Forme	er Refiner	y							
Sample ID:	MB-57890	Samp	oType: ME	BLK	Tes	tCode: E	PA 200.8: M	letals			
Client ID:	PBW	Bat	ch ID: 57	890	F	RunNo: 7	75061				
Prep Date:	2/3/2021	Analysis	Date: 2/	4/2021	Ş	SeqNo: 2	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:	MSLLLCS-57890	SLL	TestCode: EPA 200.8: Metals								
Client ID:	BatchQC	Bat	ch ID: 57	890	RunNo: <b>75061</b>						
Prep Date:	2/3/2021	Analysis	Date: 2/	4/2021	S	SeqNo: 2	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	Samp	oType: LC	s	Tes	tCode: E	PA 200.8: M	letals			
Client ID:	LCSW	Bat	ch ID: 57	890	F	RunNo: 7	75061				
Prep Date:	2/3/2021	Analysis	Date: 2/	4/2021	S	SeqNo: 2	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:**

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client: Project:	Wester 2021 C	rn Refining Giant Forme	Southwes r Refiner	st, Inc. y								
Sample ID: MSLLLCS-TL-57890 SampType: LCSLL TestCode: EPA 200.8: Metals												
Client ID:	BatchQC Batch ID: 57890				R	5061						
Prep Date:	2/3/2021 Analysis Date: 2/4/2021			S	SeqNo: 26	649693	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				

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- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#:	2102074				
	12-Feb-21				

Client: Project:	Western F 2021 Giar	outhwe Refiner	st, Inc. Y									
Sample ID:	MB-57968 SampType: MBLK				TestCode: EPA Method 245.1: Mercury							
Client ID:	PBW	Batch	ID: 57	968	RunNo: <b>75166</b>							
Prep Date:	2/8/2021	Analysis Da	ate: 2/	9/2021	S	eqNo: 2	653912	Units: mg/L				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury		ND 0	.00020									
Sample ID:	: LLLCS-57968 SampType: LCSLL				TestCode: EPA Method 245.1: Mercury							
Client ID:	BatchQC Batch ID: 57968			R	unNo: 7	5166						
Prep Date:	2/8/2021 Analysis Date: 2/9/2021			SeqNo: 2653913			Units: <b>mg/L</b>					
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:	ELCS-57968 SampType: LCS				TestCode: EPA Method 245.1: Mercury							
Client ID:	LCSW Batch ID: 57968			RunNo: <b>75166</b>								
Prep Date:	2/8/2021	Analysis Date: 2/9/2021			S	eqNo: 2	653914	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:	<b>GBR-15</b> Batch ID: <b>57968</b>			RunNo: <b>75166</b>								
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: <b>75166</b>								
Prep Date:	2/8/2021	Analysis D	ate: 2/	9/2021	SeqNo: 2654008 Units: m			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:

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- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit
WO#:	2102074
	12-Feb-21

Client: Project:	Western F 2021 Giar	Refining S nt Former	outhw Refine	est, Inc. ery							
Sample ID: I	MB	SampT	ype: <b>n</b>	blk	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID:	PBW	Batch	n ID: R	75022	F	RunNo: 7	5022				
Prep Date:		Analysis D	ate: 2	2/2/2021	ç	SeqNo: 2	648284	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite Nitrogen, Nitrate	(As N) e (As N)	ND ND	0.10 0.10	)							
Sample ID:	2102074-001CMS	SampT	ype: <b>m</b>	IS	Tes	tCode: El	PA Method	300.0: Anions	;		
Client ID:	GBR-24D	Batch	n ID: <b>R</b>	75022	F	RunNo: <b>7</b>	5022				
Prep Date:		Analysis D	ate: 2	2/2/2021	S	SeqNo: 2	648287	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	e (As N)	2.3	0.10	2.500	0	92.7	86.8	110			
Sample ID: 2	2102074-001CMSE	<b>)</b> SampT	ype: <b>m</b>	isd	Tes	tCode: El	PA Method	300.0: Anions	5		
Client ID:	GBR-24D	Batch	n ID: R	75022	F	RunNo: 7	5022				
Prep Date:		Analysis D	ate: 2	2/2/2021	S	SeqNo: 2	648288	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate	e (As N)	2.4	0.10	) 2.500	0	94.1	86.8	110	1.58	20	
					-			-			
Sample ID: I	LCS	SampT	ype: Ic	s	Tes	tCode: El	PA Method	300.0: Anions	;		
Sample ID: I Client ID:	LCS	SampT Batcl	ÿpe: <b>Ic</b> n ID: <b>R</b>	s 75022	Tes	tCode: El	PA Method 5022	300.0: Anions	;		
Sample ID: I Client ID: I Prep Date:	LCS LCSW	SampT Batch Analysis D	iype: <b>Ic</b> n ID: <b>R</b> Date: 2	s 75022 2/2/2021	Tes F	tCode: El RunNo: 7 SeqNo: 20	PA Method 5022 648292	300.0: Anions Units: mg/L	5		
Sample ID: I Client ID: I Prep Date: Analyte	LCS	SampT Batch Analysis D Result	ype: Ic ID: R Date: 2 PQL	s 75022 2/2/2021 SPK value	Tes F SPK Ref Val	tCode: EI RunNo: 7 SeqNo: 2 %REC	PA Method 5022 648292 LowLimit	<b>300.0: Anions</b> Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual
Sample ID: 1 Client ID: 1 Prep Date: Analyte Nitrogen, Nitrite	LCS LCSW (As N)	SampT Batch Analysis D Result 0.90	ype: Ic n ID: R pate: 2 PQL 0.10	s 75022 2/2/2021 SPK value 0 1.000	Tes F SPK Ref Val 0	tCode: <b>EI</b> RunNo: <b>7</b> SeqNo: <b>2</b> %REC 90.2	PA Method 5022 648292 LowLimit 90	300.0: Anions Units: mg/L HighLimit 110	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate	LCS LCSW (As N) e (As N)	SampT Batch Analysis D Result 0.90 2.3	ÿpe: Ic n ID: R Date: 2 PQL 0.10 0.10	<b>55</b> 75022 2/2/2021 SPK value 0 1.000 0 2.500	Tes F SPK Ref Val 0 0	tCode: <b>EI</b> RunNo: <b>7</b> SeqNo: <b>2</b> %REC 90.2 93.2	<b>PA Method</b> 5022 548292 LowLimit 90 90	300.0: Anions Units: mg/L HighLimit 110 110	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate	LCS LCSW (As N) (As N) (As N) MB	SampT Batch Analysis D Result 0.90 2.3 SampT	Type: Ic n ID: R Date: 2 PQL 0.10 0.10	ss 75022 2/2/2021 SPK value ) 1.000 ) 2.500 mblk	Tes F SPK Ref Val 0 0 Tes	tCode: <b>EI</b> RunNo: <b>7</b> SeqNo: <b>2</b> %REC 90.2 93.2 tCode: <b>EI</b>	PA Method 5022 648292 LowLimit 90 90 PA Method	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I	LCS LCSW (As N) e (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch	ype: Ic n ID: R pate: 2 PQL 0.10 0.10 0.10 rype: rr n ID: R	rs 75022 2/2/2021 SPK value ) 1.000 ) 2.500 ablk 75057	Tes F SPK Ref Val 0 0 Tes F	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7	PA Method 5022 548292 LowLimit 90 90 90 PA Method 5057	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date:	LCS LCSW (As N) (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D	Type: Ic n ID: R Pate: 2 0.10 0.10 Type: m n ID: R Pate: 2	ss 75022 2/2/2021 SPK value ) 1.000 ) 2.500 bblk 75057 2/3/2021	Tes F SPK Ref Val 0 0 Tes F S	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7 SeqNo: 20	PA Method 5022 548292 LowLimit 90 90 PA Method 5057 649557	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte	LCS LCSW (As N) e (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D Result	Type:         Ic           n ID:         R           PQL         0.10           0.10         0.10           0.10         0.10           0.10         0.10           Operations         0.10	rs 75022 2/2/2021 SPK value ) 1.000 ) 2.500 ablk 75057 2/3/2021 SPK value	Tes F SPK Ref Val 0 0 Tes F SPK Ref Val	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7 SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 90 PA Method 5057 549557 LowLimit	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride	LCS LCSW (As N) (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D Result	Type:         Ic           n ID:         R           PQL         0.10           0.10         0.10           Type:         m           n ID:         R           Date:         2           PQL         0.10           Type:         m           Date:         2           PQL         0.10           On ID:         R           PQL         0.10	s 75022 2/2/2021 SPK value ) 1.000 ) 2.500 bblk 75057 2/3/2021 SPK value	Tes F SPK Ref Val 0 0 Tes F SPK Ref Val	tCode: El RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: El RunNo: 7 SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 PA Method 5057 649557 LowLimit	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride Chloride Sulfate	LCS LCSW (As N) e (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D Result ND ND ND	rype: lo n ID: R PQL 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.1	rs 75022 2/2/2021 SPK value ) 1.000 ) 2.500 bblk 75057 2/3/2021 SPK value	Tes F SPK Ref Val 0 0 Tes F SPK Ref Val	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7 SeqNo: 20 %REC	PA Method 5022 648292 LowLimit 90 90 PA Method 5057 649557 LowLimit	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride Chloride Sulfate	LCS LCSW (As N) (As N) (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D Result ND ND ND	ype: Ic Date: 2 PQL 0.10 0.10 0.10 0.10 0.10 0.10 0.20 0.20	rs 75022 2/2/2021 SPK value ) 1.000 ) 2.500 blk 75057 2/3/2021 SPK value ) )	Tes F SPK Ref Val 0 0 Tes SPK Ref Val	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7 SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 PA Method 5057 549557 LowLimit	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L HighLimit	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride Chloride Sulfate	LCS LCSW (As N) (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D Result ND ND ND ND ND	ype: lc Date: 2 PQL 0.10 0.10 0.10 0.10 0.10 0.10 0.50 0	ss 75022 2/2/2021 SPK value ) 1.000 ) 2.500 bblk 75057 2/3/2021 SPK value ) ) ) ss	Tes SPK Ref Val 0 0 Tes SPK Ref Val	tCode: EI RunNo: 7: SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7: SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 PA Method 5057 LowLimit PA Method 5057	300.0: Anions Units: mg/L HighLimit 110 300.0: Anions Units: mg/L HighLimit 300.0: Anions	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride Sulfate Sample ID: I Client ID: I Prep Date:	LCS LCSW (As N) (As N) (As N) MB PBW LCS LCSW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch ND ND ND SampT Batch Analysis D	Type:         Ic           n ID:         R           pate:         2           PQL         0.10           0.10         0.10           0.10         0.10           n ID:         R           pate:         2           PQL         0.10           n ID:         R           pate:         2           PQL         0.10           0.50         0.50           n ID:         R           pate:         2           on ID:         R           pate:         2	rs 75022 2/2/2021 SPK value ) 1.000 ) 2.500 blk 75057 2/3/2021 SPK value ) ) ) ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	Tes F SPK Ref Val 0 0 Tes SPK Ref Val Tes F	tCode: EI RunNo: 7 SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7 SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 90 PA Method 5057 549557 LowLimit PA Method 5057 549558	300.0: Anions Units: mg/L HighLimit 110 110 300.0: Anions Units: mg/L HighLimit 300.0: Anions Units: mg/L	%RPD	RPDLimit	Qual
Sample ID: I Client ID: I Prep Date: Analyte Nitrogen, Nitrite Nitrogen, Nitrate Sample ID: I Client ID: I Prep Date: Analyte Fluoride Chloride Sulfate Sample ID: I Client ID: I Prep Date: Analyte	LCS LCSW (As N) (As N) (As N) MB PBW	SampT Batch Analysis D Result 0.90 2.3 SampT Batch Analysis D ND ND ND SampT Batch Analysis D SampT Batch	Type:       Ic         n ID:       R         PQL       0.10         0.10       0.10         Type:       m         n ID:       R         Pate:       2         PQL       0.10         Type:       m         Date:       2         PQL       0.10         O.10       0.50         O.50       0.50         Type:       Ic         Date:       2         PQL       0.10         0.50       0.50         Type:       Ic         Pate:       2         Pate:       2         Pate:       2         POI       0.50	ss 75022 2/2/2021 SPK value ) 1.000 ) 2.500 bblk 75057 2/3/2021 SPK value ) ) ss 75057 2/3/2021	Tes F SPK Ref Val 0 0 Tes SPK Ref Val Tes SPK Ref Val	tCode: EI RunNo: 7: SeqNo: 20 %REC 90.2 93.2 tCode: EI RunNo: 7: SeqNo: 20 %REC tCode: EI RunNo: 7: SeqNo: 20 %REC	PA Method 5022 548292 LowLimit 90 90 PA Method 5057 549557 LowLimit PA Method 5057 649558	300.0: Anions Units: mg/L HighLimit 110 300.0: Anions Units: mg/L HighLimit 300.0: Anions Units: mg/L HighLimit	%RPD	RPDLimit RPDLimit	Qual

#### Qualifiers:

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

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

Client: Project:	Western Refining Southwes 2021 Giant Former Refiner	st, Inc. y							
Sample ID: LCS	SampType: Ics		TestCode: EPA Method 300.0: Anions						
Client ID: LCSW	Batch ID: R7	5057	R	RunNo: 7	5057				
Prep Date:	Analysis Date: 2/	3/2021	SeqNo: 2649558			Units: <b>mg/L</b>			
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: mb	lk	Tes	tCode: EF	PA Method	300.0: Anions	5		
Client ID: PBW	Batch ID: R7	5059	R	RunNo: <b>7</b>	5059				
Prep Date:	Analysis Date: 2/	3/2021	S	SeqNo: 26	649611	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								
Sulfate	ND 0.10								
ounde									
Sample ID: LCS	SampType: Ics		Tes	tCode: EF	PA Method	300.0: Anions	•		
Client ID: LCSW	Batch ID: R7	5059	R	RunNo: 7	5059				
Prep Date:	Analysis Date: 2/3	3/2021	S	SeqNo: 26	649619	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: mb	lk	Tes	tCode: EF	PA Method	300.0: Anions	;		
Client ID: PBW	Batch ID: R7	5078	R	RunNo: <b>7</b>	5078				
Prep Date:	Analysis Date: 2/4	4/2021	S	SeqNo: 26	650975	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: Ics		Tes	tCode: EF	PA Method	300.0: Anions	5		
Client ID: LCSW	Batch ID: R7	5078	R	RunNo: <b>7</b>	5078				
Prep Date:	Analysis Date: 2/4	4/2021	S	SeqNo: 26	650976	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

NDNot Detected at the Reporting LimitPQLPractical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#: 2102074 12-Feb-21

Client: V Project: 2	Western Refining 2021 Giant Forme	Southwe r Refine	est, Inc. ery								
Sample ID: 100ng Ic	s Samp	Type: L	cs	Tes	TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW	Bat	ch ID: C	75172		RunNo: 7	75172					
Bron Data:	Analysis	Data: 7	0/0/2024		SocNo: 2654906						
Fiep Date.	Analysis		/9/2021		Sequo. 2	2034000	οπτε. <b>μg/L</b>				
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	e-d4 7.8		10.00		77.8	70	130				
Surr: 4-Bromofluorobenz	zene 9.6		10.00		96.2	70	130				
Surr: Dibromofluorometh	nane 8.8		10.00		87.7	70	130				
Surr: Toluene-d8	9.2		10.00		91.6	70	130				
Sample ID: mb1	Samp	оТуре: <b>М</b>	BLK	TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Bat	ch ID: C	75172	I	RunNo: <b>75172</b>						
Prep Date:	Analysis	Date: 2	2/9/2021	:	SeqNo: 2	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	1								
Ethylbenzene	ND	1.0	1								
Methyl tert-butyl ether (MT	BE) ND	1.0	1								
1,2,4-Trimethylbenzene	ND	1.0	1								
1,3,5-Trimethylbenzene	ND	1.0	1								
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	1								
Acetone	ND	10	)								
Bromobenzene	ND	1.0	1								
Bromodichloromethane	ND	1.0	1								
Bromoform	ND	1.0	1								
Bromomethane	ND	3.0	1								
2-Butanone	ND	10	)								
Carbon disulfide	ND	10	)								
Carbon Tetrachloride	ND	1.0	1								
Chlorobenzene	ND	1.0	1								
Chloroethane	ND	2.0	)								
Chloroform	ND	1.0	)								
Chloromethane	ND	3.0	)								
2-Chlorotoluene	ND	1.0	)								

Qualifiers:

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- P Sample pH Not In Range
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WO#:	2102074
	12-Feb-21

Client: Project:	Western Refining	g Southwe	st, Inc.							
	2021 Glant Form		ly							
Sample ID: mb1	Sam	npType: M	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Ba	atch ID: C7	75172	F	RunNo: <b>7</b>	5172				
Prep Date:	Analysi	s Date: 2	/9/2021	S	SeqNo: 2	654807	Units: µg/L			
Analyte	Result	t 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-chloropro	pane 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-Tetrachloroethan	e ND	) 1.0								
1,1,2,2-Tetrachloroethan	e ND	2.0								
Tetrachloroethene (PCE)	) ND	) 1.0								
trans-1,2-DCE	, ND	) 1.0								
trans-1,3-Dichloropropen	ne 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:** 

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

- Analyte detected in the associated Method Blank В
- Е Value above quantitation range
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- Р Sample pH Not In Range
- RL Reporting Limit

WO#:	2102074
	12-Feb-21

Client:WProject:20	estern R 21 Gian	Refining S at Former	Southwe: Refiner	st, Inc. Y							
Sample ID: mb1		Samp	Туре: <b>МЕ</b>	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: PBW		Bato	h ID: <b>C7</b>	5172	F	RunNo: 7	5172				
Prep Date:		Analysis	Date: 2/	9/2021	S	SeqNo: 2	654807	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-d	4	7.5		10.00		74.7	70	130			
Surr: 4-Bromofluorobenzer	ne	9.2		10.00		92.3	70	130			
Surr: Dibromofluoromethan	ne	9.6		10.00		96.4	70	130			
Surr: Toluene-d8		10		10.00		99.9	70	130			
Sample ID: 2102074-0	01ams	Samp	Туре: <b>МS</b>	6	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
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-d	4	8.5		10.00		84.7	70	130			
Surr: 4-Bromofluorobenzer	ne	10		10.00		101	70	130			
Surr: Dibromofluoromethar	ne	8.7		10.00		87.1	70	130			
Surr: Toluene-d8		9.5		10.00		94.9	70	130			
Sample ID: 2102074-0	01amsd	Samp	Туре: МS	SD	Tes	tCode: El	PA Method	8260B: VOL	ATILES		
Client ID: GBR-24D		Bato	h ID: <b>C7</b>	5172	F	RunNo: 7	5172				
Prep Date:		Analysis	Date: 2/	9/2021	S	SeqNo: 2	654813	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-d	4	8.7		10.00		87.3	70	130	0	0	
Surr: 4-Bromofluorobenzer	ne	9.6		10.00		95.7	70	130	0	0	
Surr: Dibromofluoromethar	ne	9.2		10.00		92.2	70	130	0	0	
Surr: Toluene-d8		9.5		10.00		94.6	70	130	0	0	

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- PQL Practical Quanitative Limit
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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
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WO#: 2102074 12-Feb-21

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Client:WesProject:2021	tern Refining S I Giant Former	outhwes Refiner	it, Inc. y								
Sample ID: mb-57859	SampT	Гуре: МВ	LK	Tes	tCode: El	PA Method					
Client ID: PBW	Batch	h ID: 578	59	RunNo: 75123							
Prep Date: 2/2/2021	Analysis D	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: Ics-57859	SampT	Type: LC	S	Tes	tCode: El	PA Method	8270SIM				
Client ID: LCSW	Batch	h ID: 578	59	F	unNo: 7	5123					

Sample ID. 105-57659	SampType. LCS			165	icoue. El	PA Method				
Client ID: LCSW	Batch	n ID: 57	859	F	RunNo: <b>75123</b>					
Prep Date: 2/2/2021	Analysis D	Date: 2/	4/2021	S	SeqNo: 2	651789	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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Analyte detected in the associated Method Blank В

WO#: 2102074

Client:	Western Refining	Southwe	st, Inc.							
Project: 2	2021 Giant Forme	r Refiner	У							
Sample ID: Ics-5785	9 Samp	Type: LC	S	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSW	Bate	ch ID: 57	859	F	RunNo: 7	5123				
Prep Date: 2/2/202	1 Analysis	Date: 2/	4/2021	S	SeqNo: 20	651789	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-Tribromopher	nol 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-578	59 Samp	Type: LC	SD	Tes	tCode: El	PA Method	8270SIM			
Client ID:     LCSS02     Batch ID:     57859     RunNo:     75123										
Prep Date: 2/2/202	1 Analysis	Date: 2/	4/2021	S	SeqNo: 2	651790	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-Tribromophe	nol 7.1		10.00		70.6	27.7	118	0	0	
Surr: 2-Fluorobiphenvl	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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- Analyte detected in the associated Method Blank в
- Е Value above quantitation range
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Client:	Western R	efining So	outhwe	st, Inc.							
Project:	2021 Gian	t Former l	Refiner	у							
Sample ID: I	MB-57864	SampT	ype: ME	BLK	TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID:	ent ID: PBW Batch ID: 57864					RunNo: <b>75039</b>					
Prep Date:	2/2/2021	Analysis Da	ate: 2/	3/2021	S	eqNo: 2	648821	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: I	LCS-57864	SampT	ype: LC	S	Tes	Code: S	M2540C MC	DD: Total Diss	olved Sol	lids	
Client ID:	LCSW	Batch	ID: 57	864	R	unNo: 7	75039				
Prep Date:	2/2/2021	Analysis Da	ate: 2/	3/2021	S	eqNo: 2	648822	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: 2	2102074-005CDUP	SampT	ype: DL	JP	Tes	tCode: S	M2540C MC	D: Total Diss	olved Sol	lids	
Client ID:	GBR-21D	Batch	ID: 57	864	R	unNo: 7	5039				
Prep Date:	2/2/2021	Analysis D	ate: 2/	3/2021	S	eqNo: 2	648842	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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 33 of 33

HALL ENVIRON ANALYSI LABORA	IMENTAL S Fory	Ha TI V	ıll Environmenta All EL: 505-345-397. Vebsite: clients.h	l Analysis Labo 4901 Hawki nuquerque, NM 5 FAX: 505-345 allenvironmenta	ratory ins NE 87109 <b>San</b> 5-4107 al.com	nple Log-In C	heck List
Client Name: W	estern Refining outhwest, Inc.	Worl	< Order Number	2102074		RcptNo:	1
Received By: J	uan Rojas	2/2/20	21 7:30:00 AM		(Juan Bay)		
Completed By: C	heyenne Cason	2/2/202	21 8:53:25 AM				
Reviewed By: 🧲	GL ZI	2/21					
Chain of Custod	<u>ly</u>						
1. Is Chain of Custo	ody complete?			Yes 🗹	No 🗌	Not Present	
2. How was the san	nple delivered?			Courier			
Log In 3. Was an attempt r	nade to cool the sa	mples?		Yes 🗹	No 🗌	NA 🗌	
4. Were all samples	received at a temp	erature of >0° C	to 6.0°C	Yes	No 🗹	NA 🗌	
<ol> <li>Sample(s) in prop</li> </ol>	per container(s)?			Yes ⊻	No 🗔		
6. Sufficient sample	volume for indicate	d test(s)?		Yes 🔽	No 🗌		
7. Are samples (exc	ept VOA and ONG)	properly preserv	red?	Yes 🗸	No 🗌		
8. Was preservative	added to bottles?			Yes	No 🗹	NA	
9. Received at least	1 vial with headspa	ce <1/4" for AQ	VOA?	Yes	No 🗌	NA 🗹	
10. Were any sample	e containers receive	d broken?		Yes 🗀	No 🗹	# of preserved	
11. Does paperwork r (Note discrepanci	natch bottle labels? es on chain of custo	ody)		Yes 🗹	No 🗌	for pH:	>12 unless noted)
12. Are matrices corre	ectly identified on C	hain of Custody?	2	Yes 🗹	No 🗌	Adjusted?	YO
13. Is it clear what an	alyses were reques	ted?		Yes 🗹	No 🗌		
14. Were all holding t (If no, notify custo	imes able to be mel mer for authorizatio	? n.)		Yes 🗹	No 🛄	Checked by:	10 2/2/24
Special Handling	ı (if applicable)						
15. Was client notifie	d of all discrepancie	es with this order	?	Yes 🗌	No 🗌	NA 🗹	
Person Not	ified:	4+Romann Rent Kritischer Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Statistichten Statistichten Bei Statistichten Statistichten Statistichten Statistichten Statistichten Statistichten Statistichten Statistichten Bei Statistichten Statistichte	Date:	in an an an an Anna an	a full services in the second second second		
By Whom:			Via: [	eMail	Phone 🗌 Fax	In Person	
Regarding:					NATIONAL AND CONTRACTORS IN A DATE OF	nen mana dang kentangkan diseren di kedangkan kana kaleng	
Client Instru	uctions:	1		5.1.1	in) () de	an ala -m/r	0100 - bas
10. Additional remar	ks: For metals	analysis	JO zlz	IZI	4003 70	Sample -W61	) 440 010
Cooler No	Temp °C Conditie	on Seal Intect	Seal No	Seal Date	Signed By		
1 1.	3 Good	Yes	Courte	oour Date	Signed by		
2 0.	6 Good	Yes					
3 0.	5 Good	Yes					
4 5.	8 Good	Yes					

Page 1 of 2

HALL ENVIRONMENTAL ANALYSIS LABORATORY 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

RcptNo: 1

Client N	lame:	Western Re Southwest,	fining Inc.	Work	Order Num	ber: 2102074	
Co	oler 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 Recor	d Turn-Aroun	d Time:	and the second se				-		Ĉ			
Client: Mar	athen	D Standar	d 🗆 Rush					4 2				RATOR	_ ×
L LOUED	Wr Corthoeir	Project Nan	ne:							l lotoca			
Mailing Address.	K K	0 1600	hiant for	her Refinery	490	1 Hawl	www ins N		buaue	erque.	MN	37109	
		Project #:			Te	. 505-3	45-39	75	Fax	505-34	15-41	07	
Phone #:								Ana	lysis	Reque	st		
email or Fax#:		Project Mar	lager:		() (0)			<sup>v</sup> Os		(+0	( <u>)</u>		
QA/QC Package:	🗆 Level 4 (Full Valic	Struct	At Hud		208) e 되어 / Q	s,80c	SMIS	S ''Oc			920A/	Y	
Accreditation:	□ Az Compliance	Sampler: C	MCGinn	E.Cernoll	'8МТ 9.708'	8082 I 1.1)	07 <u>2</u> 8 1	°ON	1	()	uəsəl		
		# of Conlers	162		) ਮ ਤਬ	ng b Seb	0 01	sls.		/0/	4) II 4) II	nal	
		Cooler Tem	p(including CF): Se	check1:5+ (°C)	ATE D)D2	etho	.83	teM T. N	(AO	-ime		112	
		Container	Preservative	HEAL No.	LEX /	99 180 M) 80	(d sH/	8 AAC 8 . 7 .	V) 09	S) 07	00 IBI	23	
Date Time	Matrix Sample Name	Type and #	Type	2102074	78 9T	08 23	₹d	CI BC	82	28		C	
020116.1.6	Ag GBR-24D	Variou	S Varials	Oel		-		+		+	-		
1 1050	1 C1BR-30		~	002									
1100	GBR-391			003						-			
5111	GBR-15			COH									
1140	CIBR-21 D			005									
(SIS)	GBR-25		-	COC									
1230	GBR - 34			607									
CHI-1	V CIBR-au	A	Ne				1				7		
								-					
										_			
Date: Time:	Relinquished by:	Received by:	Via: N. N. M.	Date Time	Remarks	0.00	tua	t.e	hold	LOU inn	020	Man.	
Date: Time: 2/i/と1 1.8 リ)	Relinquished by:	Received by:	Via: Via:	Date Time 2/2/2/ 7/ 70	guo k	#	cric 1	12 Car	1101	3	sp.r	wa	
If necessary,	samples submitted to Hall Environmental m	lay be subcontracted to other	accredited laboratorie	ss. This serves as notice of this	possibility. A	ny sub-co	itracted	data will	be clearl	y notated	on the	analytical report.	]

Recommended Analyte List fo	r GBR Site-Wide Sampling Event
VOCs Method 8260	PAHs Method 8270
benzene	naphthalene
toluene	1-methylnaphthalene
mothyl tort butyl other (MTDS)	2-methylnaphthalene
1.2.4 trimethulk	acenaphthylene
1,2,4-trimethylbenzene	acenaphthene
1,3,3-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 ac N
2-chlorotoluene	Metals Method 200 7
4-chlorotoluene	hasium*
cis-1,2-dichloroethene (cis-1,2-DCF)	bandin
cis-1.3-dichloropropene	beryllum
1.2-dibromo-3-chloropropane	cadmium*
dibromochloromethana	chromium*
dibromomethano	iron
1.2 dishlerahansana	manganese
1.3-dichlorobenzene	nickel
1,3-dichlorobenzene	silver*
dichlorodifluorometh	Metals Method 200.8
	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-isopropytoluene	
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 (PCF)	
trans-1,2-dichloroethene (trans-1 2-DCF)	
trans-1.3-dichloronronene	
1.2.3-trichlorohenzene	
1.2.4-trichlorobenzene	
111trichloroothana	
1 1 2 trickless the	
1,1,2-trichloroethane	
trichlese 9	
tricniorofluoromethane	
1,2,3-trichloropropane	
vinyl chloride	
xylenes, total	



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

OrderNo.: 2102148

RE: 2021 Giant Former Refinery

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,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 2/24/2021

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102148-001

Lab ID:

Client Sample ID: GBR-20 Collection Date: 2/2/2021 10:00:00 AM 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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 1 of 34

Date Reported: 2/24/2021

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102148-001

**Client Sample ID:** GBR-20 Collection Date: 2/2/2021 10:00:00 AM

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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в Е

Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Client Sample ID: GBR-20

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery			(	Collect	ion Dat	<b>e:</b> 2/2	2/2021 10:00:00 AM	
Lab ID:	2102148-001	Matrix:	AQUEOUS		Recei	ved Dat	e: 2/3	3/2021 7:30:00 AM	
Analyses	3	Re	sult	RL	Qual	Units	DF	Date Analyzed	Batch
EPA ME	THOD 8260B: VOLATILES							Analyst:	RAA
1,2-Dich	lorobenzene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,3-Dich	lorobenzene		ND	5.0	D	μg/L	5	2/10/2021 2:35:16 AM	A75169
1,4-Dich	lorobenzene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Dichloro	difluoromethane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dich	loroethane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dich	loroethene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2-Dich	loropropane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,3-Dich	loropropane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2,2-Dich	loropropane		ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1-Dich	loropropene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Hexachl	orobutadiene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
2-Hexan	ione		ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Isopropy	lbenzene		24	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
4-Isopro	pyltoluene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
4-Methy	I-2-pentanone		ND	50	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Methyle	ne Chloride		ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
n-Butylb	enzene		ND	15	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
n-Propyl	benzene		19	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
sec-Buty	lbenzene		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-Buty	lbenzene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,1,2-1	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
Tetrachl	oroethene (PCE)		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
trans-1,2	2-DCE		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
trans-1,3	3-Dichloropropene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,3-Tri	chlorobenzene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,4-Tri	ichlorobenzene		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,1-Tri	chloroethane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,1,2-Tri	chloroethane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Trichloro	pethene (TCE)		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Trichloro	ofluoromethane		ND	5.0	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
1,2,3-Tri	chloropropane		ND	10	D	µg/L	5	2/10/2021 2:35:16 AM	A75169
Vinyl chl	loride		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 7	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr:	4-Bromofluorobenzene		97.3 7	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr:	Dibromofluoromethane		102 7	70-130	D	%Rec	5	2/10/2021 2:35:16 AM	A75169
Surr:	Toluene-d8		105 7	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.

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Е	Value above quantitation range
т	Analyta datastad balow quantitation lin

Analyte detected below quantitation limits Р Sample pH Not In Range

Analyte detected in the associated Method Blank

RL Reporting Limit

В

Page 3 of 34

PQL Practical Quanitative Limit % Recovery outside of range due to dilution or matrix S

Value exceeds Maximum Contaminant Level.

Holding times for preparation or analysis exceeded

Sample Diluted Due to Matrix

Not Detected at the Reporting Limit

\*

D

Н

ND

**Qualifiers:** 

Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID:

Analyses

Arsenic

Beryllium

Cadmium

Selenium

Thallium

Fluoride

Chloride

Lead

Nickel

Silver

EPA 200.8: METALS

EPA METHOD 300.0: /

Nitrogen, Nitrite (As N)

Nitrogen, Nitrate (As N)

## **Client Sample ID: GBR-5** Collection Date: 2/2/2021 10:15:00 AM

20

5

5

mg/L

mg/L

mg/L

2/3/2021 6:08:28 PM

2/3/2021 5:55:36 PM

2/3/2021 5:55:36 PM

2/4/2021 10:11:49 PM

2/9/2021 10:29:00 AM

2/9/2021 9:19:15 AM

2/9/2021 9:20:34 AM

2/9/2021 9:20:34 AM

2/9/2021 1:37:49 PM

2/9/2021 10:54:00 PM

2/15/2021 11:06:52 AM 57977

R75059

R75059

R75059

R75089

57947

57977

57977

57977

57968

57966

57966

57966

57966

57966

57966

57966

57966

57966

57966

57966

57966

57966

Analyst: KS

Analyst: ELS

Analyst: ags

Analyst: DAM

2102148-002	Matrix: AQUE	OUS	<b>Received Dat</b>	e: 2/3	3/2021 7:30:00 AM	
	Result	RL	Qual Units	DF	Date Analyzed	Batch
3: METALS					Analyst	: bcv
	0.0043	0.0010	mg/L	1	2/9/2021 1:19:31 PM	57977
	ND	0.0010	mg/L	1	2/9/2021 1:19:31 PM	57977
	ND	0.00050	mg/L	1	2/9/2021 1:19:31 PM	57977
	0.0063	0.00050	mg/L	1	2/9/2021 1:19:31 PM	57977
	0.0049	0.0010	mg/L	1	2/9/2021 1:19:31 PM	57977
	0.0026	0.0010	mg/L	1	2/9/2021 1:19:31 PM	57977
	ND	0.00050	mg/L	1	2/9/2021 1:19:31 PM	57977
	ND	0.00025	mg/L	1	2/9/2021 1:19:31 PM	57977
HOD 300.0: ANIONS					Analyst	CAS
	ND	0.50	mg/L	5	2/3/2021 5:55:36 PM	R75059

10

0.50

0.50

89

ND

ND

Sulfate	1700	25	*	mg/L	50
SM2540C MOD: TOTAL DISSOLVED SOLIDS					
Total Dissolved Solids	3290	40.0	*D	mg/L	1
EPA METHOD 200.7: METALS					
Barium	0.024	0.0030		mg/L	1
Chromium	0.054	0.0060		mg/L	1
Iron	4.5	0.25	*	mg/L	5
Manganese	4.4	0.010	*	mg/L	5
EPA METHOD 245.1: MERCURY					
Mercury	ND	0.00020		mg/L	1
EPA METHOD 8270SIM					
Naphthalene	0.44	0.10		µg/L	1
1-Methylnaphthalene	ND	0.10		µg/L	1
2-Methylnaphthalene	ND	0.10		µg/L	1
Acenaphthylene	ND	0.10		µg/L	1
Acenaphthene	0.54	0.10		µg/L	1
Fluorene	1.7	0.10		µg/L	1

Benz(a)anthracene	ND	0.10	µg/L	1	2/9/2021 10:54:00 PM
Chrysene	ND	0.10	µg/L	1	2/9/2021 10:54:00 PM
Benzo(b)fluoranthene	ND	0.10	µg/L	1	2/9/2021 10:54:00 PM
Refer to the QC Summary report and sample	e login check	list for flagge	d QC data	and p	preservation information.

0.10

0.10

0.20

0.20

ND

ND

ND

0.24

\* **Qualifiers:** Value exceeds Maximum Contaminant Level.

Phenanthrene

Anthracene

Pyrene

Fluoranthene

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit в Analyte detected in the associated Method Blank

Е Value above quantitation range

µg/L

µg/L

µg/L

µg/L

1

1

1

1

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 4 of 34

Date Reported: 2/24/2021

Batch

57966

57966

57966

57966

57966

57966

57966

57966

A75169

Analyst: RAA

2/10/2021 3:57:00 AM

Analyst: DAM

#### **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 Result **RL** Oual Units **DF** Date Analyzed Analyses **EPA METHOD 8270SIM** 2/9/2021 10:54:00 PM Benzo(k)fluoranthene ND 0.10 µg/L 1 Benzo(a)pyrene ND 0.070 µg/L 1 2/9/2021 10:54:00 PM Dibenz(a,h)anthracene ND 0.10 2/9/2021 10:54:00 PM µg/L 1 2/9/2021 10:54:00 PM Benzo(g,h,i)perylene 0.22 0.10 µg/L 1 Indeno(1,2,3-cd)pyrene ND 0.30 µg/L 1 2/9/2021 10:54:00 PM Surr: Nitrobenzene-d5 148 26.3-112 S %Rec 1 2/9/2021 10:54:00 PM Surr: 2-Fluorobiphenyl 2/9/2021 10:54:00 PM 63.0 21.1-110 %Rec 1 Surr: 4-Terphenyl-d14 82.5 17.6-167 %Rec 1 2/9/2021 10:54:00 PM EPA METHOD 8260B: VOLATILES Benzene ND 5.0 D µg/L 5 2/10/2021 3:57:00 AM D Toluene ND 5.0 µg/L 5 2/10/2021 3:57:00 AM Ethylbenzene ND 5.0 D 5 µg/L 2/10/2021 3:57:00 AM Methyl tert-butyl ether (MTBE) ND 5.0 D µg/L 5 2/10/2021 3:57:00 AM 1,2,4-Trimethylbenzene ND 5.0 D µg/L 5 2/10/2021 3:57:00 AM 1,3,5-Trimethylbenzene ND 5.0 D µg/L 5 2/10/2021 3:57:00 AM 5 1,2-Dichloroethane (EDC) ND 5.0 D µg/L 2/10/2021 3:57:00 AM 1,2-Dibromoethane (EDB) ND 5.0 D µg/L 5 2/10/2021 3:57:00 AM D 5

ND

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

50

D

D

D

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D

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µg/L

5

5

5

5

5

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5

5

5

5

5

5

5

5

5

5

5

5

5

5

#### Hall Environmental Analysis Laboratory, Inc.

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

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

\* **Qualifiers:** Value exceeds Maximum Contaminant Level.

Dibromomethane

Naphthalene

Bromobenzene

Bromomethane

Carbon disulfide

Chlorobenzene

Chloromethane

2-Chlorotoluene

4-Chlorotoluene

cis-1,3-Dichloropropene

Dibromochloromethane

1,2-Dibromo-3-chloropropane

cis-1,2-DCE

Chloroethane

Chloroform

Carbon Tetrachloride

Bromoform

2-Butanone

Acetone

1-Methylnaphthalene

2-Methylnaphthalene

Bromodichloromethane

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

POL Practical Quanitative Limit в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 5 of 34

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery			(	Collect	ion Dat	e: 2/2	2/2021 10:15:00 AM	
Lab ID:	2102148-002	Matrix:	AQUEOUS		Recei	ved Dat	e: 2/3	3/2021 7:30:00 AM	
Analyses	1	Re	sult	RL	Qual	Units	DF	Date Analyzed	Batch
EPA ME	THOD 8260B: VOLATILES							Analyst	RAA
1,2-Dich	lorobenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,3-Dich	lorobenzene		ND	5.0	D	μg/L	5	2/10/2021 3:57:00 AM	A75169
1,4-Dich	lorobenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Dichloro	difluoromethane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dich	loroethane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dich	loroethene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2-Dich	loropropane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,3-Dich	loropropane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2,2-Dich	loropropane		ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1-Dich	loropropene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Hexachl	orobutadiene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
2-Hexan	one		ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Isopropy	lbenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
4-Isopro	pyltoluene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
4-Methy	I-2-pentanone		ND	50	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Methyler	ne Chloride		ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
n-Butylb	enzene		ND	15	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
n-Propyl	benzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
sec-Buty	lbenzene		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-Buty	lbenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,1,2-7	<b>Fetrachloroethane</b>		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,2,2-7	<b>Fetrachloroethane</b>		ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Tetrachl	oroethene (PCE)		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
trans-1,2	2-DCE		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
trans-1,3	3-Dichloropropene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,3-Tri	chlorobenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,4-Tri	chlorobenzene		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,1-Tri	chloroethane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,1,2-Tri	chloroethane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Trichloro	pethene (TCE)		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Trichloro	ofluoromethane		ND	5.0	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
1,2,3-Tri	chloropropane		ND	10	D	µg/L	5	2/10/2021 3:57:00 AM	A75169
Vinyl chl	oride		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 7	0-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr:	4-Bromofluorobenzene		100 7	0-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr:	Dibromofluoromethane		108 7	0-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169
Surr:	Toluene-d8		105 7	0-130	D	%Rec	5	2/10/2021 3:57:00 AM	A75169

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: GBR-5** 

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: 2021 Giant Former RefineryLab ID: 2102148-003

Client Sample ID: GBR-11 Collection Date: 2/2/2021 10:28:00 AM 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

Matrix: AQUEOUS

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

Qualifiers: \*

\* Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation rangeJ Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Page 7 of 34

Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102148-003 Client Sample ID: GBR-11 Collection Date: 2/2/2021 10:28:00 AM

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
Toluono		F 0			F	2/10/2021 4:24:17 AM	175460

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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 8 of 34

Date Reported: 2/24/2021

<b>Project:</b> 2021 Giant Former Refinery	<b>Collection Date:</b> 2/2/2021 10:28:00 AM							
Lab ID: 2102148-003	Matrix: AQUEOUS		Recei	ved Dat	te: 2/3	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 7	'0-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169	
Surr: 4-Bromofluorobenzene	99.8 7	'0-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169	
Surr: Dibromofluoromethane	103 7	'0-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169	
Surr: Toluene-d8	105 7	′0-130	D	%Rec	5	2/10/2021 4:24:17 AM	A75169	

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

# Client Sample ID: GBR-11

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery 2102148-004

Lab ID:

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Client Sample ID: GBR-8 Collection Date: 2/2/2021 10:40:00 AM 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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е

Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

2102148-004 Lab ID:

Client Sample ID: GBR-8 Collection Date: 2/2/2021 10:40:00 AM

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		ua/L	1	2/10/2021 4:51:32 AM	A75169

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range

Page 11 of 34

RL Reporting Limit

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery	Collection Date: 2/2/2021 10:40:00 AM								
Lab ID:	2102148-004	Matrix: AQUEOUS		Recei	ved Dat	e: 2/3	3/2021 7:30:00 AM			
Analyses	3	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
	THOD 8260B: VOLATILES						Analyst	RAA		
1,2-Dich	lorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,3-Dich	lorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,4-Dich	lorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1-Dich	loroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,2-Dich	loropropane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,3-Dich	loropropane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
2,2-Dich	loropropane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1-Dich	loropropene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Hexachl	orobutadiene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
2-Hexan	one	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Isopropy	lbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
4-Methy	I-2-pentanone	ND	10		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Methyler	ne Chloride	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
n-Butylb	enzene	ND	3.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
n-Propyl	benzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
sec-Buty	lbenzene	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-Buty	lbenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1,1,2-7	Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1,2,2-7	Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Tetrachl	oroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
trans-1,2	2-DCE	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
trans-1,3	3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,2,3-Tri	chlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,2,4-Tri	chlorobenzene	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1,1-Tri	chloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,1,2-Tri	chloroethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Trichloro	pethene (TCE)	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Trichloro	ofluoromethane	ND	1.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
1,2,3-Tri	chloropropane	ND	2.0		µg/L	1	2/10/2021 4:51:32 AM	A75169		
Vinyl chl	loride	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		

#### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: GBR-8** 

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102148-005

Lab ID:

Client Sample ID: GBR-9 Collection Date: 2/2/2021 11:15:00 AM

**Received Date:** 2/3/2021 7:30:00 AM Matrix: AQUEOUS

leceiveu	Date:	2/3/2021	7.50.00	AW

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

CLIENT: Western Refining Southwest, Inc.		Cl	ient Sa	mple II	D: Gl	BR-9	
Project: 2021 Giant Former Refinery		(	Collecti	ion Dat	e: 2/2	2/2021 11:15:00 AM	
Lab ID: 2102148-005	Matrix: AQUE	OUS	Receiv	ed Dat	<b>e:</b> 2/3	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

## Hall Environmental Analysis Laboratory, Inc.

Ι

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

Project: 2021 Giant Former Refinery	Collection Date: 2/2/2021 11:15:00 AMMatrix: AOUEOUSReceived Date: 2/3/2021 7:30:00 AM								
Lab ID: 2102148-003	Matrix: AQUEOUS		Received Dat	e: 2/3	5/2021 7:50:00 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 7	70-130	%Rec	1	2/10/2021 5:18:48 AM	A75169			
Surr: 4-Bromofluorobenzene	100 7	70-130	%Rec	1	2/10/2021 5:18:48 AM	A75169			
Surr: Dibromofluoromethane	105 7	70-130	%Rec	1	2/10/2021 5:18:48 AM	A75169			
Surr: Toluene-d8	101 7	70-130	%Rec	1	2/10/2021 5:18:48 AM	A75169			

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: GBR-9** 

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Е Value above quantitation range

В

J Analyte detected below quantitation limits Р Sample pH Not In Range

Analyte detected in the associated Method Blank

RL Reporting Limit

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Date Reported: 2/24/2021

<b>CLIENT:</b>	Western Refining Southwest, In	IC.	C	lient Sa	ample I	D: GI	BR-13	
Project:	2021 Giant Former Refinery			Collect	ion Dat	te: 2/2	2/2021 11:25:00 AM	
Lab ID:	2102148-006	Matrix: AQUE	OUS	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	n	ND	0.0010		mg/L	1	2/9/2021 1:27:57 PM	57977
Cadmiun	n	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	n	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 MET	THOD 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
SM25400	MOD: TOTAL DISSOLVED SO	LIDS					Analyst	KS
Total Dis	solved Solids	2380	100	*D	mg/L	1	2/9/2021 10:29:00 AM	57947
EPA MET	THOD 200.7: METALS						Analyst	ELS
Barium		0.042	0.0030		mg/L	1	2/9/2021 9:51:06 AM	57977
Chromiu	m	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
Mangane	ese	4.7	0.010	*	mg/L	5	2/9/2021 9:52:25 AM	57977
EPA MET	THOD 245.1: MERCURY						Analyst	ags
Mercury		ND	0.00020		mg/L	1	2/9/2021 1:45:54 PM	57968
EPA MET	THOD 8270SIM						Analyst	DAM
Naphtha	lene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
1-Methyl	naphthalene	0.16	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
2-Methyl	naphthalene	0.20	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Acenaph	thylene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Acenaph	thene	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
Phenant	hrene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Anthrace	ene	0.32	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966
Chrysen	e	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

## Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J

Analyte detected below quantitation limits Sample pH Not In Range

Р RL Reporting Limit

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Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery	Collection Date: 2/2/2021 11:25:00 AM           Matrix: AQUEOUS         Received Date: 2/3/2021 7:30:00 AM							
Lab ID:	2102148-006								
Analyses	5	Result	RL	Qual	Units	DF	Date Analyzed	Batch	
EPA ME	THOD 8270SIM						Analyst	DAM	
Benzo(k	x)fluoranthene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966	
Benzo(a	a)pyrene	ND	0.070		μg/L	1	2/10/2021 2:02:00 AM	57966	
Dibenz(a	a,h)anthracene	ND	0.10		µg/L	1	2/10/2021 2:02:00 AM	57966	
Benzo(g	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 ME	THOD 8260B: VOLATILES						Analyst	RAA	
Benzene	e	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Toluene	9	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
Ethylber	nzene	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
Methyl t	ert-butyl ether (MTBE)	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2,4-Tr	imethylbenzene	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1,3,5-Tr	imethylbenzene	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2-Dich	nloroethane (EDC)	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2-Dibr	omoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Naphtha	alene	ND	2.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1-Methy	Inaphthalene	ND	4.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
2-Methy	Inaphthalene	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	
Bromob	enzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Bromod	ichloromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Bromofo	orm	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Bromorr	nethane	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
2-Butan	one	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	
Chlorob	enzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Chloroe	thane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Chlorofo	orm	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Chlorom	nethane	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
2-Chloro	otoluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
4-Chloro	otoluene	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-Dibr	omo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Dibromo	ochloromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Dibromo	omethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GBR-13

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Client Sample ID: GBR-13

Date Reported: 2/24/2021

Project: Lab ID:	2021 Giant Former Refinery 2102148-006	Matrix: AQUEOUS	Collection Date: 2/2/2021 11:25:00 AM Received Date: 2/3/2021 7:30:00 AM						
Analyses	3	Result	RL	Qual	Units	DF	Date Analyzed	Batch	
EPA ME	THOD 8260B: VOLATILES						Analyst	RAA	
1,2-Dich	lorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,3-Dich	lorobenzene	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
1,4-Dich	lorobenzene	ND	1.0		μg/L	1	2/10/2021 5:46:07 AM	A75169	
Dichloro	difluoromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1-Dich	loroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2-Dich	loropropane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,3-Dich	loropropane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
2,2-Dich	loropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1-Dich	loropropene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Hexachle	orobutadiene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
2-Hexan	ione	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Isopropy	lbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
4-Methy	I-2-pentanone	ND	10		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Methyler	ne Chloride	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
n-Butylb	enzene	ND	3.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
n-Propyl	benzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
sec-Buty	lbenzene	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-Buty	lbenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1,1,2-7	Tetrachloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1,2,2-7	Tetrachloroethane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Tetrachl	oroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
trans-1,2	2-DCE	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
trans-1,3	3-Dichloropropene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2,3-Tri	chlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2,4-Tri	chlorobenzene	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1,1-Tri	chloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,1,2-Tri	chloroethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Trichloro	bethene (TCE)	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Trichloro	ofluoromethane	ND	1.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
1,2,3-Tri	chloropropane	ND	2.0		µg/L	1	2/10/2021 5:46:07 AM	A75169	
Vinyl chl	loride	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 7	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169	
Surr:	4-Bromofluorobenzene	97.0 7	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169	
Surr:	Dibromofluoromethane	101 7	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169	
Surr:	Toluene-d8	104 7	70-130		%Rec	1	2/10/2021 5:46:07 AM	A75169	

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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#### Date Reported: 2/24/2021

Hall	Env	ironme	ental	Ana	lysis	Lal	borat	tory,	Inc.
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CLIENT: Western Refining Southwest, Inc.

Project: Lab ID: 2021 Giant Former Refinery 2102148-007 Matrix: AQUEOUS Client Sample ID: GBR-35 Collection Date: 2/2/2021 11:55:00 AM 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 Quanitative Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

JAnalyte detected below quantitation limitsPSample pH Not In Range

P Sample pH Not I RL Reporting Limit Page 19 of 34

Client Sample ID: GBR-35

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery	<b>Collection Date:</b> 2/2/2021 11:55:00 AM								
Lab ID:	2102148-007	Matrix: AQUE	OUS	Recei	ved Dat	te: 2/3	/2021 7:30:00 AM			
Analyses	S	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA ME	THOD 8270SIM						Analyst	DAM		
Benzo(k	()fluoranthene	ND	1.0	D	µg/L	10	2/10/2021 2:49:00 AM	57966		
Benzo(a	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	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 ME	THOD 8260B: VOLATILES						Analyst	RAA		
Benzen	e	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		
Ethylber	nzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Methyl t	ert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
1,2,4-Tr	imethylbenzene	ND	1.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
1,3,5-Tr	imethylbenzene	ND	1.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
1,2-Dich	nloroethane (EDC)	ND	1.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
1,2-Dibr	omoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Naphtha	alene	ND	2.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
1-Methy	Inaphthalene	ND	4.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
2-Methy	Inaphthalene	ND	4.0		μg/L	1	2/10/2021 6:13:18 AM	A75169		
Acetone	<b>9</b>	ND	10		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Bromob	enzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Bromod	lichloromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Bromofo	orm	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Bromon	nethane	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
2-Butan	one	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		
Chlorob	enzene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Chloroe	thane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Chlorofo	orm	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Chlorom	nethane	ND	3.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
2-Chloro	otoluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
4-Chloro	otoluene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
cis-1,2-I	DCE	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
cis-1,3-I	Dichloropropene	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
1,2-Dibr	omo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Dibromo	ochloromethane	ND	1.0		µg/L	1	2/10/2021 6:13:18 AM	A75169		
Dibromo	omethane	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.

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

В Analyte detected in the associated Method Blank

\* Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

**Qualifiers:** 

% Recovery outside of range due to dilution or matrix S

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 20 of 34

Date Reported: 2/24/2021

Project:2021 Giant Former RefineryLab ID:2102148 007	Collection Date: 2/2/2021 11:55:00 AM           Matrix: AOUEOUS         Received Date: 2/3/2021 7:30:00 AM								
Lab ID: 2102140-007			Received D	aic. 2/.	5/2021 7.50.00 Alvi				
Analyses	Result	RL	Qual Units	s 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 7	70-130	%Re	c 1	2/10/2021 6:13:18 AM	A75169			
Surr: 4-Bromofluorobenzene	103	70-130	%Re	c 1	2/10/2021 6:13:18 AM	A75169			
Surr: Dibromofluoromethane	105	70-130	%Re	c 1	2/10/2021 6:13:18 AM	A75169			
Surr: Toluene-d8	106	70-130	%Re	c 1	2/10/2021 6:13:18 AM	A75169			

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

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# Client Sample ID: GBR-35

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information. \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

**Qualifiers:** 

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range

RL Reporting Limit

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WO#:	2102148
	24-Feb-21

Client: Project:	Western I 2021 Gian	Refining S nt Forme	Southwe r Refiner	st, Inc. 'Y							
Sample ID:	MB-57977	Samp	Туре: МЕ	BLK	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	PBW	Bate	ch ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	S	SeqNo: 26	653478	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:	LLLCS-57977	Samp	Type: LC	SLL	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	BatchQC	Bate	ch ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	S	SeqNo: 20	653480	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	Samp	Type: LC	s	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	LCSW	Bate	ch ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	S	SeqNo: 26	653482	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	Samp	Туре: М	6	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	GBR-11	Bate	ch ID: 57	977	F	RunNo: <b>7</b>	5157				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	S	SeqNo: 20	653527	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:	2102148-003DMS	) Samp	Туре: М	SD	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	GBR-11	Bate	ch ID: 57	977	F	RunNo: <b>7</b> :	5157				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	Ş	SeqNo: 26	653528	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 exceededND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#:	2102148
	24-Feb-21

Client:	Western H	Refining S	Southwe	st, Inc.							
Project:	2021 Gia	nt Former	Refiner	у							
Sample ID:	2102148-003DMS	Samp	Гуре: М	3	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-11	Batc	h ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis [	Date: 2/	9/2021	S	SeqNo: 2	653530	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:	2102148-003DMSE	) Samp	Гуре: М	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-11	Batc	h ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis [	Date: 2/	9/2021	S	SeqNo: 2	653531	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	Samp	Гуре: М	3	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-9	Batc	h ID: 57	977	F	RunNo: 7	5157				
Prep Date:	2/8/2021	Analysis [	Date: 2/	9/2021	ŝ	SeqNo: 2	653535	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:	2102148-005DMSE	Samp <sup>-</sup>	Гуре: <b>М</b>	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-9	Batc	h ID: 57	977	RunNo: <b>75157</b>						
Prep Date:	2/8/2021	Analysis [	Date: 2/	9/2021	S	SeqNo: 2	653536	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	Samp	Гуре: <b>М</b>	6	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-9	Batc	h ID: 57	977	F	RunNo: 7	5197				
Prep Date:	2/8/2021	Analysis [	Date: 2/	10/2021	S	SeqNo: 2	655199	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:	2102148-005DMSE	Samp	Гуре: М	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GBR-9	Batc	h ID: 57	977	F	RunNo: 7	5197				
Prep Date:	2/8/2021	Analysis [	Date: 2/	10/2021	5	SeqNo: 2	655200	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit
| WO#: | 2102148   |  |
|------|-----------|--|
|      | 24 Eab 21 |  |

Client:	Western	Refining	Southwe	est, Inc.							
Project:	2021 Gia	nt Forme	r Refine	ry							
Sample ID:	MB-57977	Sam	Type: M	BLK	TestCode: EPA 200.8: Metals						
Client ID:	PBW	Bat	ch ID: 57	977	RunNo: <b>75170</b>						
Prep Date:	2/8/2021	Analvsis	Date: 2	/9/2021		SeaNo: :	2654055	Units: ma/L			
Assiste		Denti	DOI 1	0.001/		NDEO	1				0
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LOWLIMIT	HighLimit	%RPD	RPDLIMIt	Quai
Dorullium			0.0010								
Beryllium			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:	MSLLLCS-57977	Samp	SampType: LCSLL			stCode: E	EPA 200.8: N	letals			
Client ID:	BatchQC	Batch ID: 57977			RunNo: <b>75170</b>						
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	Samp	Type: LC	cs	Tes	stCode: E	EPA 200.8: N	letals			
Client ID:	LCSW	Bat	ch ID: 57	977	I	RunNo:	75170				
Prep Date:	2/8/2021	Analysis	Date: 2	/9/2021	:	SeqNo: 2	2654057	Units: <b>mg/L</b>			
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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

WO#:	2102148
	24-Feb-21

Project:	Western 2021 Gi	Refining ant Forme	Southwe r Refiner	st, Inc. V							
				, 							
Sample ID:	MSLLLCS(IL)-5	<b>/9//</b> Samp	olype: LC	SLL	restCode: EPA 200.8: Metals						
Client ID:	BatchQC	Bat	ch ID: 57	977	ŀ	RunNo: 7	5170				
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	S	SeqNo: 20	654058	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:	2102148-006DM	SLL Samp	туре: М	3	TestCode: EPA 200.8: Metals						
Client ID:	<b>GBR-13</b> Batch ID: <b>57977</b>			F	RunNo: 7	5170					
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	5	SeqNo: 20	654134	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			
Inallium		0.012	0.00025	0.01250	0	97.2	70	130			
Sample ID:	Tes	tCode: EF	PA 200.8: N	letals							
Client ID:	GBR-13	Bat	ch ID: 57	977	RunNo: <b>75170</b>						
		21 Analysis Date: 2/9/2021				SeqNo: 2654135 Units: mg/L					
Prep Date:	2/8/2021	Analysis	Date: 2/	9/2021	5	SeqNo: 20	654135	Units: mg/L			
Prep Date: Analyte	2/8/2021	Analysis Result	Date: 2/ PQL	9/2021 SPK value	SPK Ref Val	eqNo: <b>2</b> 6%	6 <b>54135</b> LowLimit	Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual
Prep Date: Analyte Arsenic	2/8/2021	Analysis Result 0.029	Date: 2/ PQL 0.0010	9/2021 SPK value 0.02500	SPK Ref Val 0.001824	SeqNo: 26 %REC 108	654135 LowLimit 70	Units: mg/L HighLimit 130	%RPD 1.19	RPDLimit 20	Qual
Prep Date: Analyte Arsenic Beryllium	2/8/2021	Analysis Result 0.029 0.025	Date: 2/ PQL 0.0010 0.0010	9/2021 SPK value 0.02500 0.02500	SPK Ref Val 0.001824 0	SeqNo: 20 %REC 108 99.1	654135 LowLimit 70 70	Units: <b>mg/L</b> HighLimit 130 130	%RPD 1.19 2.40	RPDLimit 20 22	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium	2/8/2021	Analysis Result 0.029 0.025 0.013	Date: 2/ PQL 0.0010 0.0010 0.00050	9/2021 SPK value 0.02500 0.02500 0.01250	SPK Ref Val 0.001824 0 .00008367	SeqNo: 20 %REC 108 99.1 99.5	654135 LowLimit 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130	%RPD 1.19 2.40 1.46	RPDLimit 20 22 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead	2/8/2021	Analysis Result 0.029 0.025 0.013 0.019	Date: 2/ PQL 0.0010 0.00050 0.00050	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250	SPK Ref Val 0.001824 0 .00008367 0.004816	SeqNo: 20 %REC 108 99.1 99.5 115	654135 LowLimit 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130	%RPD 1.19 2.40 1.46 1.78	RPDLimit 20 22 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel	2/8/2021	Analysis Result 0.029 0.025 0.013 0.019 0.040	Date: 2/ PQL 0.0010 0.00050 0.00050 0.0010	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.02500	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069	SeqNo: 20 %REC 108 99.1 99.5 115 118	654135 LowLimit 70 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291	RPDLimit 20 22 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver	2/8/2021	Analysis Result 0.029 0.025 0.013 0.019 0.040 0.012	Date: 2/ PQL 0.0010 0.00050 0.00050 0.0010 0.00050	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.02500 0.01250	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7	654135 LowLimit 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93	RPDLimit 20 22 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium	2/8/2021	Analysis Result 0.029 0.025 0.013 0.019 0.040 0.012 0.012	Date: 2/ PQL 0.0010 0.00050 0.00050 0.0010 0.00050 0.00050 0.00025	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7	LowLimit 70 70 70 70 70 70 70 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 22 20 20 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID:	2/8/2021	Analysis Result 0.029 0.025 0.013 0.019 0.040 0.012 0.012 SLL Samp	Date: 2/ PQL 0.0010 0.00050 0.00050 0.0010 0.00050 0.00025	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 3	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF	LowLimit 70 70 70 70 70 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 22 20 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID:	2/8/2021 : 2102148-006DM3 GBR-13	Analysis Result 0.029 0.025 0.013 0.019 0.040 0.012 0.012 SLL Samp Bat	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.00025 0.00025 ch ID: 57	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF	LowLimit 70 70 70 70 70 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 22 20 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date:	2/8/2021 2102148-006DM GBR-13 2/8/2021	Analysis <u>Result</u> 0.029 0.025 0.013 0.019 0.040 0.012 0.012 <b>SLL</b> Samp Bat Analysis	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00025 0.00025 DType: MS ch ID: 57 Date: 2/	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.02500 0.01250 0.02500 0.02500 0.01250 0.02500 0.02500 0.01250 0.02500 0.02500 0.01250 0.02500 0.02500 0.01250 0.02500 0.01250 0.02500 0.01250 00	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes F	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF RunNo: 7 SeqNo: 20	LowLimit 70 70 70 70 70 70 70 70 70 70 70 70 70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 22 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date: Analyte	2/8/2021 2102148-006DM GBR-13 2/8/2021	Analysis <u>Result</u> 0.029 0.025 0.013 0.019 0.040 0.012 0.012 SLL Samp Bat Analysis Result	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.00025 DType: MS ch ID: 57 Date: 2/ PQL	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 SPK value	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes F SPK Ref Val	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF RunNo: 7 SeqNo: 20 %REC	LowLimit       70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130 130 Units: mg/L HighLimit	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 20 20 20 20 20 20	Qual
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date: Analyte Selenium	2/8/2021 2/8/2021 2102148-006DM3 GBR-13 2/8/2021	Analysis <u>Result</u> 0.029 0.025 0.013 0.019 0.040 0.012 0.012 <b>SLL</b> Samp Bat Analysis <u>Result</u> ND	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.00025 DType: MS ch ID: 57 Date: 2/ PQL 0.0050	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 5 977 16/2021 SPK value 0.02500	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes SPK Ref Val 0	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF RunNo: 7 SeqNo: 20 %REC 14.9	LowLimit       70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130 Units: mg/L HighLimit 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462 %RPD	RPDLimit 20 20 20 20 20 20 20	Qual Qual S
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date: Analyte Selenium Sample ID:	2/8/2021 2/8/2021 2102148-006DM GBR-13 2/8/2021 2102148-006DM	Analysis <u>Result</u> 0.029 0.025 0.013 0.019 0.040 0.012 0.012 <b>SLL</b> Samp Bat Analysis <u>Result</u> ND <b>SDL</b> Samp	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.00025 DType: MS ch ID: 57 Date: 2/ PQL 0.0050	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 5 977 16/2021 SPK value 0.02500 5D	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes SPK Ref Val 0	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF &unNo: 7 SeqNo: 20 %REC 14.9	LowLimit       70       5322       662153       LowLimit       70       70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130 Metals Units: mg/L HighLimit 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462 %RPD	RPDLimit       20	Qual Qual S
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date: Analyte Selenium Sample ID: Client ID:	2/8/2021 2/8/2021 2102148-006DM3 GBR-13 2/8/2021 2102148-006DM3 GBR-13	Analysis <u>Result</u> 0.029 0.025 0.013 0.019 0.040 0.012 0.012 0.012 SLL Samp <u>Result</u> ND SDL Samp Bat	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.00025 DType: MS ch ID: 57 PQL 0.0050 DType: MS ch ID: 57	9/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 5 977 16/2021 SPK value 0.02500 5 977	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 Tes SPK Ref Val 0 Tes	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF &unNo: 7 %REC 14.9 tCode: EF	LowLimit       70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462 %RPD	RPDLimit 20 20 20 20 20 20 20 20	Qual Qual S
Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver Thallium Sample ID: Client ID: Prep Date: Analyte Selenium Sample ID: Client ID: Prep Date:	2/8/2021 2/8/2021 2102148-006DM GBR-13 2/8/2021 3 3 2/8/2021	Analysis       Result       0.029       0.025       0.013       0.019       0.040       0.012       0.012       SLL       Samp       Result       ND       SDL       Samp       Analysis	Date: 2/ PQL 0.0010 0.00050 0.00050 0.00025 DType: MS ch ID: 57 Date: 2/ PQL 0.0050 DType: MS ch ID: 57 Date: 2/	9/2021 SPK value 0.02500 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.01250 0.02500 SPK value 0.02500 SD 977 16/2021	SPK Ref Val 0.001824 0 .00008367 0.004816 0.01069 0 0 0 Tes SPK Ref Val 0 Tes F	SeqNo: 20 %REC 108 99.1 99.5 115 118 95.7 96.7 tCode: EF RunNo: 7 %REC 14.9 tCode: EF RunNo: 7 SeqNo: 20	LowLimit       70	Units: mg/L HighLimit 130 130 130 130 130 130 130 130	%RPD 1.19 2.40 1.46 1.78 0.0291 1.93 0.462	RPDLimit 20 20 20 20 20 20 20	Qual Qual S

Qualifiers:

- Value exceeds Maximum Contaminant Level. \*
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Client:	Western Refining Southwest, Inc.										
Project:	2021 Gia	2021 Giant Former Refinery									
Sample ID: 2102148-006DMSDL SampType: MSD TestCode: EPA 200.8: Metals											
Client ID:	GBR-13	Bato	h ID: 579	977	RunNo: <b>75322</b>						
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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client:	Western	Refining Southwest, Inc.								
Project:	2021 Gia	ant Former Refinery								
Sample ID:	MB-57968	SampType: MBLK	TestCode: EPA Method 245.1: Mercury							
Client ID:	PBW	Batch ID: 57968	RunNo: <b>75166</b>							
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 RPDLi	mit Qual					
Mercury		ND 0.00020								
Sample ID:	LLLCS-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 RPDLi	mit 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: <b>mg/L</b>						
Analyte		Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD RPDLi	mit 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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#:	2102148
	24-Feb-21

Client: Project:	Western Refining So 2021 Giant Former	outhwes Refiner	st, Inc. y								
Sample ID: MB	SampT	ype: mb	lk	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch	n ID: <b>R7</b>	5059	R	RunNo: 75	059					
Prep Date:	Analysis D	ate: 2/	3/2021	S	SeqNo: 26	649611	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	SampT	ype: Ics		Tes	A Method	300.0: Anions	;				
Client ID: LCSW	Batch	Batch ID: <b>R75059</b>				RunNo: <b>75059</b>					
Prep Date:	Analysis D	ate: <b>2/</b> 3	3/2021	S	SeqNo: 26	49619	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	SampT	ype: mb	lk	Tes	tCode: EF	A Method	300.0: Anions	;			
Client ID: PBW	Batch	n ID: <b>R7</b>	5089	R	RunNo: 75	6089					
Prep Date:	Analysis D	ate: 2/	4/2021	S	SeqNo: 26	50852	Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfate	ND	0.50									
Sample ID: LCS	SampT	ype: Ics		Tes	tCode: EP	A Method	300.0: Anions	;			
Client ID: LCSW	Batch	n ID: <b>R7</b>	5089	R	RunNo: <b>75</b>	6089					
Prep Date:	Analysis D	ate: 2/	4/2021	S	SeqNo: 26	50853	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:

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- D Sample Diluted Due to Matrix
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ND Not Detected at the Reporting Limit

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

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Client: We Project: 202	stern Refining S 1 Giant Former	Southwe Refiner	st, Inc. 'y							
Sample ID: 100ng lcs2	Samp	Type: LC	:S	Tes	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: LCSW	Batc	:h ID: <b>A7</b>	5169	F	RunNo: <b>75169</b>					
Prep Date:	Analysis [	Date: 2/	10/2021		SeqNo: <b>2654624</b> Units: µg/					
Analyte	Result	POI	SPK value	SPK Ref Val	%REC	l owl imit	Highl imit	%RPD	RPDI imit	Qual
Benzene	20	1.0	20.00	0	102	70	130			Quui
Toluene	_0 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: 2102148-00	3	Tes	stCode: E	PA Method	8260B: VOL	ATILES				
Client ID: GBR-20	Batc	Batch ID: A75169			RunNo: 7	75169				
Prep Date:	Analysis [	Analysis Date: 2/10/2021		Ş	SeqNo: 2654629					
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: 2102148-00	1amsd Samp	Туре: <b>М</b>	SD	Tes	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: GBR-20	Batc	h ID: <b>A7</b>	5169	F	RunNo: 7	75169				
Prep Date:	Analysis [	Date: 2/	10/2021	\$	SeqNo: 2	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:

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- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#:	2102148
	24-Feb-21

Client: Wes	stern Refining S	outhwe	est, Inc.								
<b>Project:</b> 202	1 Giant Former	Refine	ery								
Sample ID: mb2	Sampl	BLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: <b>PBW</b>	Batc	h ID: A	75169	1	RunNo: <b>75169</b>						
Bron Doto:			140/2024			0.00					
Prep Date:	Analysis L		2/10/2021	·	Sequo: Z	2004003	υπις: <b>μg/L</b>				
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	1								
2-Methylnaphthalene	ND	4.0									
Acetone	ND	10									
Bromobenzene	ND	1.0	1								
Bromodichloromethane	ND	1.0									
Bromoform	ND	1.0	)								
Bromomethane	ND	3.0									
2-Butanone	ND	10									
Carbon disulfide	ND	10	1								
Carbon Tetrachloride	ND	1.0	1								
Chlorobenzene	ND	1.0	)								
Chloroethane	ND	2.0	)								
Chloroform	ND	1.0	1								
Chloromethane	ND	3.0	1								
2-Chlorotoluene	ND	1.0	)								
4-Chlorotoluene	ND	1.0	)								
cis-1,2-DCE	ND	1.0	1								
cis-1,3-Dichloropropene	ND	1.0	1								
1,2-Dibromo-3-chloropropane	ND	2.0	1								
Dibromochloromethane	ND	1.0	1								
Dibromomethane	ND	1.0	1								
1,2-Dichlorobenzene	ND	1.0	)								
1,3-Dichlorobenzene	ND	1.0	)								
1,4-Dichlorobenzene	ND	1.0	1								
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:**

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

WO#:	2102148
	24-Feb-21

Client:	Western Refin	ning Soutl	nwest	, Inc.								
Project:	2021 Giant Fo	ormer Ref	inery									
		<b>.</b>		14	<b>T</b>							
Sample ID: mb2	:	Samplype	MBL	.K	les	tCode: El	PA Method	8260B: VOL	ATILES			
Client ID: PBW		Batch ID:	A75′	169	F	RunNo: 7	5169					
Prep Date:	Ana	lysis Date:	2/10	0/2021	S	SeqNo: 2	654653	Units: µg/L				
Analyte	Re	esult P	QL :	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									
lsopropylbenzene		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-Tetrachloroethar	ie	ND	1.0									
1,1,2,2-Tetrachloroethar	ie	ND	2.0									
Tetrachloroethene (PCE	)	ND	1.0									
trans-1,2-DCE		ND	1.0									
trans-1,3-Dichloroproper	ne	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-Dichloroetha	ine-d4	10		10.00		105	70	130				
Surr: 4-Bromofluorobe	enzene	10		10.00		101	70	130				
Surr: Dibromofluorom	ethane	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

WO#: 2102148 24-Feb-21

Client: Western	n Refining S	outhwes	st, Inc.							
Project: 2021 G	iant Former	Refiner	v							
			5							
Sample ID: mb-57966	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8270SIM			
Client ID: PBW	Batch	n ID: 579	966	F	RunNo: 7	5176				
Prep Date: 2/8/2021	Analysis D	ate: 2/	9/2021	S	SeqNo: 2	654266	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								
Pvrene	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)nvrene	ND	0.070								
Dibenz(a,b)anthracene	ND	0.10								
Benzo(a h i)pervlene	ND	0.10								
Indeno(1.2.3-cd)pyrene	ND	0.10								
Surr: Nitrobenzene-d5	34	0.00	4 000		84 5	26.3	112			
Surr: 2.4.6-Tribromonhenol	20		8 000		247	20.0	112			S
Surr: 2-Eluorobinbenvl	20		4 000		57.5	21.1	110			0
Surr: 4-Ternbenyl-d14	2.5 4 4		4 000		110	17.6	167			
	7.7		4.000		110	17.0	107			
Sample ID: Ics-57966	SampT	ype: LC	S	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSW	Batch	n ID: 579	966	F	RunNo: 7	5176				
Prep Date: 2/8/2021	Analysis D	ate: 2/	9/2021	S	SeqNo: 2	654267	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			

#### **Qualifiers:**

Benz(a)anthracene

Pyrene

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

1.3

1.6

0.20

0.10

2.000

2.000

B Analyte detected in the associated Method Blank

67.0

80.0

15

38.7

128

111

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

0

0

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WO#: 2102148 24-Feb-21

Client:	Western	Western Refining Southwest, Inc.							
Project:	2021 G	iant Former Refinery							
Sample ID: Ics	-57966	SampType: LCS							

Sample ID: Ics-57966	SampT	ype: LC	S	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSW	Batch	n ID: 579	966	R	RunNo: 7	5176				
Prep Date: 2/8/2021	Analysis D	Date: 2/9	9/2021	S	SeqNo: 2	654267	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: Icsd-57966	SampT	ype: LC	SD	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSS02	Batch	n ID: 579	966	R	RunNo: <b>7</b>	5176				
Prep Date: 2/8/2021	Analysis D	Date: 2/9	9/2021	S	SeqNo: 2	654268	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client: Project:	Western 2021 Gia	Refining So ant Former	outhwe Refiner	st, Inc. Y							
Sample ID: MB	-57947	SampT	ype: ME	BLK	Tes	tCode: SI	M2540C MC	D: Total Diss	olved So	lids	
Client ID: PB	w	Batch	n ID: 57	947	F	RunNo: 7	5149				
Prep Date: 2/	5/2021	Analysis D	ate: 2/	9/2021	S	SeqNo: 2	653357	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Soli	ds	ND	20.0								
Sample ID: LC	S-57947	SampT	ype: LC	S	Tes	tCode: SI	M2540C MC	D: Total Diss	olved So	lids	
Client ID: LC	SW	Batch	n ID: 57	947	F	RunNo: 7	5149				
Prep Date: 2/	5/2021	Analysis D	ate: 2/	9/2021	S	SeqNo: 2	653358	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Soli	ds	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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 ENVIR ANAL LABOI	RONMENTAL Ysis Ratory	Hall Environmentai Alb TEL: 505-345-3973 Website: clients.hc	l Analy 490 uquerq 5 FAX: allenvii	sis Lat 1 Haw 10e, NI 505-3 ronmer	boratory kins NE M 87109 45-4107 ntal.com	imple Lo	og-In Ch	eck List
Client Name:	Western Refining Southwest, Inc.	Work Order Number	: 210	2148			RcptNo: 1	
Received By:	Juan Rojas	2/3/2021 7:30:00 AM			Hearing	4		
Completed By:	Desiree Dominguez	2/3/2021 9:38:14 AM			Tro			
Reviewed By:	101/	7/5/21			113			
3(	so attecked by	SDA - RE21						
Chain of Cus	todv	54A 2.3 2.						
1. Is Chain of C	ustody complete?		Yes	$\checkmark$	No	] Not Pr	esent	
2 How was the	sample delivered?		Cou	rier				
			2					
Log In	ant made to each the second	-2	N.		N- [	1		
5. Was an allen	ipt made to cool the sample	:5 ?	Yes	V		]	NA 🗀	
4. Were all samp	ples received at a temperatu	ire of >0° C to 6.0°C	Yes	$\checkmark$	No		NA 🗌	
5. Sample(s) in	proper container(s)?		Yes	✓	No 🗌			
6 Sufficient sam	onle volume for indicated tes	t(s)?	Vac		No			
7 Are samples (	except VOA and ONG) pror	perly preserved?	Yes		No 🗌			
8. Was preserva	tive added to bottles?	ing preserved?	Yes		No 🗸		NA 🗍	
			100					
9. Received at le	east 1 vial with headspace <	1/4" for AQ VOA?	Yes	$\checkmark$	No		NA 🗌	
10. Were any sar	mple containers received bro	bken?	Yes		No 🗸	# of pres	erved	
11. Does paperwo	ork match bottle labels?		Yes	$\checkmark$	No	for pH:	necked	4
12 Are matrices of	correctly identified on Chain	of Custody?	Vas		No	Adj	usted? VE	S
13 Is it clear what	t analyses were requested?	of Ouslody!	Yes				γU	-
14. Were all holdi	ng times able to be met?		Yes	$\checkmark$	No	Che	cked by: DAL	2/5/21
(If no, notify c	ustomer for authorization.)					1 ab	oled wood	al un Dan al
Special Handl	ing (if applicable)					Leco	alla unpi	es NO3: DAD 2/3
15. Was client no	tified of all discrepancies wi	ith this order?	Yes		No 🗌	]	NA 🗹	
Person	Notified:	Date:	ute qui zonto	R LONG-COLORS		847		
By Who	om:	Via:	eM	ail 🗌	] Phone [] Fa	ax 🗌 In Pers	son	
Regard	ing:						ond an University	
Client I	nstructions:						and a constraint france of a	
16. Additional rea	marks: For metals a	malysis added n	0.5	rL.	HNO3 to :	samples	001D 300	7 D
17. Cooler Infor	mation For PH	(2 DAD 2151	21					
Cooler No	Temp °C Condition	Seal Intact Seal No S	Seal D	ate	Signed By			
1	2.4 Good	Yes						

5 -If necessary, samples submitted to Hall Environmental may be

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
naphtnaiene	fluoranthene
2-methylnaphthalene	pyrene
zentone	benz(a)anthracene
bromobenzene	chrysene boozo/b)@ucroathono
bromodichloromethane	benzo(b)fluoranthene
bromoform	benzo(a)nyrene
bromomethane	dibenz(a h)anthracene
2-butanone	henzo(g h i)nervlene
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*
hexachlorobutadiana	Total Dissolved Solids Method M2540C
2-bevanone	total dissolved solids
isopronylbenzene	
4-isopropytoluene	
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	I
1,1,1-trichloroethane	
1,1,2-trichloroethane	
trichloroethene (TCE)	
trichlorofluoromethane	
1,2,3-trichloropropane	
vinyl chloride	
xylenes, 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

OrderNo.: 2102310

RE: 2021 Giant Former Refinery

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,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 2/24/2021

<b>CLIENT:</b>	Western Refining Southwest,	Inc.	C	ient Sa	ample I	D: GI	RW-9	
Project:	2021 Giant Former Refinery			Collect	tion Dat	te: 2/4	4/2021 10:00:00 AM	
Lab ID:	2102310-001	Matrix: AQU	EOUS	Recei	ved Dat	te: 2/5	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
Berylliun	n	ND	0.0010		mg/L	1	2/11/2021 12:18:13 PM	57999
Cadmiur	n	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
Seleniun	n	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 MET	THOD 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
SM25400	MOD: TOTAL DISSOLVED	SOLIDS					Analyst	KS
Total Dis	ssolved Solids	3260	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047
EPA ME	THOD 200.7: METALS						Analyst	ELS
Barium		0.034	0.0030		mg/L	1	2/10/2021 9:21:27 AM	57999
Chromiu	Im	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
Mangan	ese	0.53	0.0020	*	mg/L	1	2/10/2021 9:21:27 AM	57999
EPA MET	THOD 245.1: MERCURY						Analyst	ags
Mercury		ND	0.00020		mg/L	1	2/12/2021 10:32:13 AM	58036
EPA ME	THOD 8270SIM						Analyst	DAM
Naphtha	lene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
1-Methyl	Inaphthalene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
2-Methyl	Inaphthalene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Acenaph	nthylene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Acenaph	nthene	0.18	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Fluorene	9	0.38	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Phenant	hrene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Anthrace	ene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/16/2021 4:39:00 PM	57991
Chrysen	e	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

## Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 1 of 49

S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

Lab ID: 2102310-001	Matrix: AQUE	EOUS	Recei	ved Dat	e: 2/5	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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Collection Date: 2/4/2021 10:00:00 AM

Client Sample ID: GRW-9

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix

**Analytical Report** 

Lab Order 2102310

Date Reported: 2/24/2021

Lab ID:     2102310-001	Matrix: AQUEOUS	5	Receiv	ved Dat	e: 2/4	5/2021 10:00:00 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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Project: 2021 Giant Ec D.C Client Sample ID: GRW-9 Collection Date: 2/4/2021 10:00:00 AM

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

<b>CLIENT:</b>	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: AQUE	OUS	Recei								
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	n	ND	0.0010		mg/L	1	2/11/2021 12:20:19 PM	57999				
Cadmiur	n	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				
Seleniun	n	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 MET	THOD 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				
SM25400	MOD: TOTAL DISSOLVED S	OLIDS					Analyst:	KS				
Total Dis	ssolved Solids	1880	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047				
EPA MET	THOD 200.7: METALS						Analyst:	ELS				
Barium		0.066	0.0030		mg/L	1	2/10/2021 9:29:13 AM	57999				
Chromiu	m	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				
Mangane	ese	3.3	0.010	*	mg/L	5	2/10/2021 9:30:35 AM	57999				
EPA MET	THOD 245.1: MERCURY						Analyst:	ags				
Mercury		ND	0.00020		mg/L	1	2/12/2021 10:34:37 AM	58036				
EPA MET	THOD 8270SIM						Analyst:	DAM				
Naphtha	lene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
1-Methyl	naphthalene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
2-Methyl	naphthalene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Acenaph	nthylene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Acenaph	nthene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Fluorene	9	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Phenant	hrene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Anthrace	ene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/16/2021 5:23:00 PM	57991				
Chrysen	e	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				

Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Sample pH Not In Range

Р RL Reporting Limit

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% Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc. **CLIENT:** Western Refining Southwest, Inc. **Client Sample ID: GRW-2** 2021 Giant Former Refinery Collection Date: 2/4/2021 10:35:00 AM **Project:** 2102310-002 Matrix: AQUEOUS Lab ID: Received Date: 2/5/2021 8:00:00 AM

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8270SIM					Analysi	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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits

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Р Sample pH Not In Range RL Reporting Limit

Date Reported: 2/24/2021

Project:2021 Giant Former RefineryLab ID:2102310-002	4/2021 10:35:00 AM 5/2021 8:00:00 AM					
Analyses	Result	RL Q	ual 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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

P 2021 C: nt E-..... **D** (7 **Client Sample ID:** GRW-2 Callastian De 2/4/2021 10.25.00 AM

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

CLIENT:	Western Refining Southwest, Inc	с.	Client Sample ID: GRW-3								
Project:	2021 Giant Former Refinery		(	Collect	ion Dat	<b>e:</b> 2/4	/2021 10:55:00 AM				
Lab ID:	2102310-003	Matrix: AQUI	EOUS	Recei	ved Dat	e: 2/5	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	า	ND	0.0010		mg/L	1	2/11/2021 12:22:26 PM	57999			
Cadmiur	n	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			
Seleniun	n	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 MET	THOD 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			
SM25400	MOD: TOTAL DISSOLVED SO	LIDS					Analyst:	KS			
Total Dis	solved Solids	1860	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047			
EPA MET	THOD 200.7: METALS						Analyst:	ELS			
Barium		0.21	0.0030		mg/L	1	2/10/2021 9:31:55 AM	57999			
Chromiu	m	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			
Mangane	ese	1.8	0.010	*	mg/L	5	2/10/2021 9:33:15 AM	57999			
EPA MET	THOD 245.1: MERCURY						Analyst:	ags			
Mercury		ND	0.00020		mg/L	1	2/12/2021 10:36:58 AM	58036			
EPA MET	THOD 8270SIM						Analyst:	DAM			
Naphtha	lene	0.12	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
1-Methyl	naphthalene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
2-Methyl	naphthalene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
Acenaph	hthylene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
Acenaph	thene	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			
Phenant	hrene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
Anthrace	ene	0.34	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
Fluorant	hene	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)a	anthracene	ND	0.10		µg/L	1	2/16/2021 6:07:00 PM	57991			
Chrysen	e	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			

Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

**Client Sample ID: GRW-3** 

Date Reported: 2/24/2021

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	3	Result	RL	Qual Units	DF	Date Analyzed	Batch			
EPA ME	THOD 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	a,h)anthracene	ND	0.10	µg/L	1	2/16/2021 6:07:00 PM	57991			
Benzo(g	ı,h,i)perylene	ND	0.10	μg/L	1	2/16/2021 6:07:00 PM	57991			
Indeno(1	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 ME	THOD 8260B: VOLATILES					Analyst	BRM			
Benzene	e	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			
Ethylber	nzene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Methyl te	ert-butyl ether (MTBE)	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1,2,4-Tri	imethylbenzene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1,3,5-Tri	imethylbenzene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1,2-Dich	loroethane (EDC)	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1,2-Dibr	omoethane (EDB)	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Naphtha	alene	ND	2.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1-Methy	Inaphthalene	ND	4.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
2-Methy	Inaphthalene	ND	4.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Acetone	1	ND	10	μg/L	1	2/10/2021 8:13:41 PM	R75222			
Bromob	enzene	ND	1.0	μg/L	1	2/10/2021 8:13:41 PM	R75222			
Bromodi	ichloromethane	ND	1.0	μg/L	1	2/10/2021 8:13:41 PM	R75222			
Bromofo	orm	ND	1.0	μg/L	1	2/10/2021 8:13:41 PM	R75222			
Bromom	nethane	ND	3.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
2-Butan	one	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			
Chlorobe	enzene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Chloroet	thane	ND	2.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Chlorofo	prm	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Chlorom	nethane	ND	3.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
2-Chloro	otoluene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
4-Chloro	otoluene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
cis-1,2-E	DCE	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
cis-1,3-E	Dichloropropene	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
1,2-Dibr	omo-3-chloropropane	ND	2.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Dibromo	ochloromethane	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			
Dibromo	omethane	ND	1.0	µg/L	1	2/10/2021 8:13:41 PM	R75222			

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** D

Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

в Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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**Analytical Report** 

Lab Order 2102310

Date Reported: 2/24/2021

Project:     2021 Giant Former Refinery       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		

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 C: Densta • E -**D** *C*  2/4/2021 10.55.00 AM

**Client Sample ID: GRW-3** 

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

% Recovery outside of range due to dilution or matrix

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102310-004

Lab ID:

**Client Sample ID: GRW-4** Collection Date: 2/4/2021 11:20:00 AM 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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

Project:2021 Giant Former RefineryLab ID:2102310-004	Matrix: AQUEOUSReceived Date: 2/5/2021 8:00:00 AM								
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
FPA METHOD 8270SIM						Analyst			
Benzo(k)fluoranthene	ND	1.0		ua/l	1	2/16/2021 6·51·00 PM	57991		
Benzo(a)pyrepe	ND	0.35		µg/⊑ ⊔a/l	1	2/16/2021 6:51:00 PM	57991		
Dibenz(a,h)anthracene	ND	0.50		ua/l	1	2/16/2021 6:51:00 PM	57991		
Benzo(a.h.i)pervlene	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-Fluorobiphenvl	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	ua/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	µ=9= ua/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	µq/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		

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Ductor 2021 Class Es D.f. **Client Sample ID: GRW-4** Collection Deter 2/4/2021 11:20:00 AM

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

\* **Qualifiers:** 

S

D Sample Diluted Due to Matrix

Value exceeds Maximum Contaminant Level. Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range RL Reporting Limit

в

% 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.

**Project:** 2021 Giant Former Refinery

Lab ID:

2102310-004

**Client Sample ID: GRW-4** Collection Date: 2/4/2021 11:20:00 AM

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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits Sample pH Not In Range

Р RL Reporting Limit

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Date Reported: 2/24/2021

CLIENT: Western Refining Southwest, Inc. Client						ent Sample ID: GRW-5					
Project:	2021 Giant Former Refinery		(	Collect	ion Dat	<b>e:</b> 2/4	/2021 11:45:00 AM				
Lab ID:	2102310-005	Matrix: AQUEC	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	1	ND	0.0010		mg/L	1	2/11/2021 12:26:38 PM	57999			
Cadmiun	n	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	1	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 MET	HOD 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 SO	LIDS					Analyst:	KS			
Total Dis	solved Solids	2790	40.0	*D	mg/L	1	2/11/2021 5:57:00 PM	58047			
EPA MET	HOD 200.7: METALS						Analyst:	ELS			
Barium		0.048	0.0030		mg/L	1	2/10/2021 9:47:49 AM	57999			
Chromiu	m	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			
Mangane	ese	5.7	0.020	*	mg/L	10	2/15/2021 12:53:31 PM	57999			
EPA MET	HOD 245.1: MERCURY						Analyst:	ags			
Mercury		ND	0.00020		mg/L	1	2/12/2021 10:46:24 AM	58036			
EPA MET	HOD 8270SIM						Analyst:	DAM			
Naphthal	ene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
1-Methyli	naphthalene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
2-Methyli	naphthalene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
Acenaph	thylene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
Acenaph	thene	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			
Phenanth	nrene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
Anthrace	ne	0.38	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
Fluoranth	nene	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)a	Inthracene	ND	0.10		µg/L	1	2/16/2021 7:34:00 PM	57991			
Chrysen	9	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			

## Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

**Client Sample ID: GRW-5** 

Date Reported: 2/24/2021

Project: Lab ID:	2021 Giant Former Refinery 2102310-005	Collection Date: 2/4/2021 11:45:00 AM       Matrix: AQUEOUS     Received Date: 2/5/2021 8:00:00 AM									
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch			
EPA MET	THOD 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	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: I	Nitrobenzene-d5	70.5	26.3-112		%Rec	1	2/16/2021 7:34:00 PM	57991			
Surr: 2	2-Fluorobiphenyl	56.5	21.1-110		%Rec	1	2/16/2021 7:34:00 PM	57991			
Surr: 4	4-Terphenyl-d14	109	17.6-167		%Rec	1	2/16/2021 7:34:00 PM	57991			
EPA MET	THOD 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			
Ethylben	izene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Methyl te	ert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1,2,4-Tri	methylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1,3,5-Tri	methylbenzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1,2-Dich	loroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1,2-Dibro	omoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Naphtha	lene	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1-Methyl	naphthalene	ND	4.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
2-Methyl	naphthalene	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			
Bromobe	enzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Bromodi	chloromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Bromofo	rm	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Bromom	ethane	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
2-Butanc	one	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Carbon of	disulfide	ND	10		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Carbon 7	Tetrachloride	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Chlorobe	enzene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Chloroet	hane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Chlorofo	rm	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Chlorom	ethane	ND	3.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
2-Chloro	toluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
4-Chloro	toluene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
cis-1,2-D	DCE	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
cis-1,3-D	Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
1,2-Dibro	omo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Dibromo	chloromethane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			
Dibromo	methane	ND	1.0		µg/L	1	2/10/2021 9:08:11 PM	R75222			

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

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

\* **Qualifiers:** 

Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

**Analytical Report** 

Lab Order 2102310

Date Reported: 2/24/2021

Lab ID: 2102310-005	Matrix: AQUEOUS	S	Recei	ved Dat	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			

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Collection Date: 2/4/2021 11:45:00 AM

**Client Sample ID: GRW-5** 

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

CLIENT: Western Refining Southwest, Inc.	Client Sample ID: GRW-6									
<b>Project:</b> 2021 Giant Former Refinery	Collection Date: 2/4/2021 12:05:00 PM									
Lab ID: 2102310-006	Matrix: AQUE	OUS	Recei	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 SOLI	DS					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			

Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit S

% Recovery outside of range due to dilution or matrix

В Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery	<b>Collection Date:</b> 2/4/2021 12:05:00 PM								
Lab ID:	2102310-006	Matrix: AQUE	EOUS	Recei	ved Dat	<b>:e:</b> 2/5	5/2021 8:00:00 AM			
Analyses	5	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA ME	THOD 8270SIM						Analyst	DAM		
Benzo(k	)fluoranthene	ND	0.20		µg/L	1	2/16/2021 8:17:00 PM	57991		
Benzo(a	a)pyrene	ND	0.070		μg/L	1	2/16/2021 8:17:00 PM	57991		
Dibenz(a	a,h)anthracene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991		
Benzo(g	ı,h,i)perylene	ND	0.10		µg/L	1	2/16/2021 8:17:00 PM	57991		
Indeno(1	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 ME	THOD 8260B: VOLATILES						Analyst	BRM		
Benzene	e	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		
Ethylber	nzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Methyl te	ert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2,4-Tri	imethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,3,5-Tri	imethylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2-Dich	nloroethane (EDC)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2-Dibr	omoethane (EDB)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Naphtha	alene	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1-Methy	Inaphthalene	ND	4.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
2-Methy	Inaphthalene	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		
Bromobe	enzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Bromodi	ichloromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Bromofo	orm	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Bromom	nethane	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
2-Butan	one	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		
Chlorobe	enzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Chloroet	thane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Chlorofo	orm	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Chlorom	nethane	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
2-Chloro	otoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
4-Chloro	otoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
cis-1,2-E	DCE	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
cis-1,3-E	Dichloropropene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2-Dibr	omo-3-chloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Dibromo	ochloromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Dibromo	omethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: GRW-6** 

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S

Date Reported: 2/24/2021

<b>Project:</b>	2021 Giant Former Refinery	Collection Date: 2/4/2021 12:05:00 PM								
Lab ID:	2102310-006	Matrix: AQUEOUS	5	Recei	ved Dat	te: 2/5	5/2021 8:00:00 AM			
Analyses	S	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA ME	THOD 8260B: VOLATILES						Analyst	BRM		
1,2-Dich	nlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,3-Dich	nlorobenzene	ND	1.0		μg/L	1	2/10/2021 9:35:25 PM	R75222		
1,4-Dich	nlorobenzene	ND	1.0		μg/L	1	2/10/2021 9:35:25 PM	R75222		
Dichloro	odifluoromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,1-Dich	nloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,1-Dich	loroethene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2-Dich	nloropropane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,3-Dich	nloropropane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
2,2-Dich	nloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,1-Dich	nloropropene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Hexachl	lorobutadiene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
2-Hexar	none	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Isopropy	ylbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
4-Methy	rl-2-pentanone	ND	10		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Methyle	ne Chloride	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
n-Butylb	benzene	ND	3.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
n-Propy	lbenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
sec-But	ylbenzene	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-Buty	ylbenzene	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		
Tetrach	loroethene (PCE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
trans-1,2	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-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2,4-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,1,1-Tr	ichloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,1,2-Tr	ichloroethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Trichlor	oethene (TCE)	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Trichlor	ofluoromethane	ND	1.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
1,2,3-Tr	ichloropropane	ND	2.0		µg/L	1	2/10/2021 9:35:25 PM	R75222		
Vinyl ch	loride	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		

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Client Sample ID: GRW-6** 

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

#### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102310-007

Lab ID:

Client Sample ID: GRW-12 Collection Date: 2/4/2021 12:30:00 PM 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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J

Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102310-007

Client Sample ID: GRW-12 Collection Date: 2/4/2021 12:30:00 PM

Matrix: AQUEOUS Recei

**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.D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

B Analyte detected in the associated Method Blank
E Value above quantitation range

E Value above quantitation rangeJ Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

Project: 2021 Giant Former Refinery	Collection Date: 2/4/2021 12:30:00 PM     Matrix: AOUEOUS   Received Date: 2/5/2021 8:00:00 AM							
Lab ID. 2102310-007		Ketei		. 2/ 2				
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 7	'0-130	%Rec	1	2/11/2021 7:37:02 PM	R75246		
Surr: 4-Bromofluorobenzene	96.3 7	'0-130	%Rec	1	2/11/2021 7:37:02 PM	R75246		
Surr: Dibromofluoromethane	104 7	'0-130	%Rec	1	2/11/2021 7:37:02 PM	R75246		
Surr: Toluene-d8	103 7	0-130	%Rec	1	2/11/2021 7:37:02 PM	R75246		

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

# Client Sample ID: GRW-12

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range J

- Analyte detected below quantitation limits Р Sample pH Not In Range
- RL Reporting Limit

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% Recovery outside of range due to dilution or matrix S
Date Reported: 2/24/2021

CLIENT: Western Refini	ng Southwest, Inc.	Client Sample ID: GRW-13								
Project: 2021 Giant For	mer Refinery		(	Collect	ion Dat	e: 2/4	/2021 12:33:00 PM			
Lab ID: 2102310-008	Matrix:	Matrix: AQUEOUS Received Date: 2/5/2021 8:00:00 AM								
Analyses	Re	esult	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	0.0	0059	0.00050		mg/L	1	2/11/2021 12:37:12 PM	57999		
Nickel	(	).015	0.0010		mg/L	1	2/11/2021 12:37:12 PM	57999		
Selenium	(	).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: AN	IONS						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 I	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: ME	TALS						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: ME	RCURY						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		

### Hall Environmental Analysis Laboratory, Inc.

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

0.20

0.10

0.10

0.20

ND

ND

ND

ND

\* **Qualifiers:** 

Benz(a)anthracene

Benzo(b)fluoranthene

Pyrene

Chrysene

Value exceeds Maximum Contaminant Level. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

1

1

1

1

J Analyte detected below quantitation limits

µg/L

µg/L

µg/L

µg/L

Р Sample pH Not In Range

RL Reporting Limit Page 22 of 49

2/16/2021 10:41:00 PM 57991

2/16/2021 10:41:00 PM 57991

2/16/2021 10:41:00 PM 57991

2/16/2021 10:41:00 PM 57991

% Recovery outside of range due to dilution or matrix S

Date Reported: 2/24/2021

Batch

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2102310-008

**EPA METHOD 8270SIM** 

Benzo(k)fluoranthene

Dibenz(a,h)anthracene

Indeno(1,2,3-cd)pyrene

Surr: Nitrobenzene-d5

Surr: 2-Fluorobiphenyl

Surr: 4-Terphenyl-d14

Benzo(g,h,i)perylene

Benzo(a)pyrene

Analyses

Client Sample ID: GRW-13 Collection Date: 2/4/2021 12:33:00 PM Received Date: 2/5/2021 8:00:00 AM

Matrix: AQUEOUS Result **RL** Oual Units **DF** Date Analyzed Analyst: DAM 2/16/2021 10:41:00 PM 57991 ND 0.20 µg/L 1 ND 0.070 µg/L 1 2/16/2021 10:41:00 PM 57991 ND 0.10 2/16/2021 10:41:00 PM 57991 µg/L 1 ND 0.10 µg/L 2/16/2021 10:41:00 PM 57991 1 ND 0.30 µg/L 1 2/16/2021 10:41:00 PM 57991 74.5 26.3-112 %Rec 1 2/16/2021 10:41:00 PM 57991 2/16/2021 10:41:00 PM 57991 61.0 21.1-110 %Rec 1 102 17.6-167 %Rec 1 2/16/2021 10:41:00 PM 57991

#### EP

PA 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. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range RL

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Reporting Limit

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery	Collection Date: 2/4/2021 12:33:00 PM								
Lab ID:	2102310-008	Matrix: AQUEOUS		Receiv	ved Dat	e: 2/5	6/2021 8:00:00 AM			
Analyses	S	Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA ME	THOD 8260B: VOLATILES						Analyst:	BRM		
1,2-Dich	nlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,3-Dich	nlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,4-Dich	nlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Dichloro	odifluoromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,1-Dich	nloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,1-Dich	nloroethene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,2-Dich	nloropropane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,3-Dich	lloropropane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
2,2-Dich	nloropropane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,1-Dich	nloropropene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Hexachl	orobutadiene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
2-Hexar	none	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Isopropy	ylbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
4-Isopro	pyltoluene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
4-Methy	1-2-pentanone	ND	10		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Methyle	ne Chloride	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
n-Butylb	enzene	ND	3.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
n-Propy	lbenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
sec-Buty	ylbenzene	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-Buty	lbenzene	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		
Tetrachl	loroethene (PCE)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
trans-1,2	2-DCE	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
trans-1,3	3-Dichloropropene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,2,3-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,2,4-Tr	ichlorobenzene	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,1,1-Tr	ichloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,1,2-Tr	ichloroethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Trichloro	pethene (TCE)	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Trichloro	ofluoromethane	ND	1.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
1,2,3-Tr	ichloropropane	ND	2.0		µg/L	1	2/11/2021 12:45:43 AM	R75222		
Vinyl ch	loride	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		

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-13

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit Page 24 of 49

% Recovery outside of range due to dilution or matrix S

Date Reported: 2/24/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102310-009

Lab ID:

### Client Sample ID: GRW-11 Collection Date: 2/4/2021 12:45:00 PM 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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J

Analyte detected below quantitation limits Sample pH Not In Range

Р RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102310-009

Client Sample ID: GRW-11 Collection Date: 2/4/2021 12:45:00 PM

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. D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 2/24/2021

Project:	2021 Giant Former Refinery		(	Collection	n Date:	2/4	4/2021 12:45:00 PM	
Lab ID:	2102310-009	Matrix: AQUEOUS	5	Received	l Date:	2/:	5/2021 8:00:00 AM	
Analyses	5	Result	RL	Qual U	nits l	DF	Date Analyzed	Batch
EPA ME	THOD 8260B: VOLATILES						Analyst	BRM
1,2-Dich	nlorobenzene	ND	1.0	μ	g/L	1	2/11/2021 1:12:57 AM	R75222
1,3-Dich	nlorobenzene	ND	1.0	μ	g/L	1	2/11/2021 1:12:57 AM	R75222
1,4-Dich	nlorobenzene	ND	1.0	μ	g/L	1	2/11/2021 1:12:57 AM	R75222
Dichloro	odifluoromethane	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dich	nloroethane	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dich	loroethene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,2-Dich	lloropropane	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,3-Dich	lloropropane	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
2,2-Dich	lloropropane	ND	2.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1-Dich	nloropropene	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
Hexachl	orobutadiene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
2-Hexan	none	ND	10	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
Isopropy	ylbenzene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
4-Isopro	pyltoluene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
4-Methy	1-2-pentanone	ND	10	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
Methyle	ne Chloride	ND	3.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
n-Butylb	penzene	ND	3.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
n-Propyl	lbenzene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
sec-Buty	ylbenzene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
Styrene		ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
tert-Buty	lbenzene	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1,1,2-	Tetrachloroethane	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1,2,2-	Tetrachloroethane	ND	2.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
Tetrachl	loroethene (PCE)	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
trans-1,2	2-DCE	ND	1.0	μί	g/L	1	2/11/2021 1:12:57 AM	R75222
trans-1,3	3-Dichloropropene	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,2,3-Tri	ichlorobenzene	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,2,4-Tri	ichlorobenzene	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1,1-Tri	ichloroethane	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,1,2-Tri	ichloroethane	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
Trichloro	pethene (TCE)	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
Trichloro	ofluoromethane	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
1,2,3-Tri	ichloropropane	ND	2.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
Vinyl ch	loride	ND	1.0	μį	g/L	1	2/11/2021 1:12:57 AM	R75222
Xylenes	, Total	ND	1.5	μί	g/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

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GRW-11

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

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range RL Reporting Limit

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Date Reported: 2/24/2021

<b>CLIENT:</b> 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: AQUE	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 SOLI	DS					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			

Hall Environmental Analysis Laboratory, Inc.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Sample pH Not In Range

Р RL Reporting Limit

Page 28 of 49

% Recovery outside of range due to dilution or matrix S

Date Reported: 2/24/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102310-010

Client Sample ID: GRW-10 Collection Date: 2/4/2021 1:15:00 PM

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

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

Е Value above quantitation range

J Analyte detected below quantitation limits Р Sample pH Not In Range

RL Reporting Limit

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Date Reported: 2/24/2021

Project:         2021 Giant Former Refinery           Lab ID:         2102310-010	Matrix: AQUEOUS	Matrix: AQUEOUSReceived Date: 2/5/2021 8:00:00 AM							
Analyses	Result	RL	Qual Ur	nits	DF	Date Analyzed	Batch		
EPA METHOD 8260B: VOLATILES						Analyst	BRM		
1,2-Dichlorobenzene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,3-Dichlorobenzene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,4-Dichlorobenzene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
Dichlorodifluoromethane	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,1-Dichloroethane	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,1-Dichloroethene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,2-Dichloropropane	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,3-Dichloropropane	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
2,2-Dichloropropane	ND	2.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
1,1-Dichloropropene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
Hexachlorobutadiene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
2-Hexanone	ND	10	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
Isopropylbenzene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
4-Isopropyltoluene	ND	1.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
4-Methyl-2-pentanone	ND	10	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
Methylene Chloride	ND	3.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
n-Butylbenzene	ND	3.0	μg	g/L	1	2/11/2021 1:40:00 AM	R75222		
n-Propylbenzene	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
sec-Butylbenzene	ND	1.0	μg	, j/L	1	2/11/2021 1:40:00 AM	R75222		
Styrene	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
tert-Butylbenzene	ND	1.0	μg	, j/L	1	2/11/2021 1:40:00 AM	R75222		
1,1,1,2-Tetrachloroethane	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
1,1,2,2-Tetrachloroethane	ND	2.0	μg	, j/L	1	2/11/2021 1:40:00 AM	R75222		
Tetrachloroethene (PCE)	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
trans-1,2-DCE	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
trans-1,3-Dichloropropene	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
1,2,3-Trichlorobenzene	ND	1.0	μg	, j/L	1	2/11/2021 1:40:00 AM	R75222		
1,2,4-Trichlorobenzene	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
1,1,1-Trichloroethane	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
1,1,2-Trichloroethane	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
Trichloroethene (TCE)	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
Trichlorofluoromethane	ND	1.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
1,2,3-Trichloropropane	ND	2.0	μg	, į/L	1	2/11/2021 1:40:00 AM	R75222		
Vinyl chloride	ND	1.0	μg	ı ı/L	1	2/11/2021 1:40:00 AM	R75222		
Xylenes, Total	ND	1.5	μg	, į/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		

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

Project: 2021 Giant Former Refir

Client Sample ID: GRW-10 Collection Date: 2/4/2021 1:15:00 PM

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

Qualifiers: \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limitsP Sample pH Not In Range

P Sample pH Not In Range RL Reporting Limit

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### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID: 2102310-011

### Client Sample ID: Trip Blank **Collection Date:**

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. D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
  - % Recovery outside of range due to dilution or matrix

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits Sample pH Not In Range
- Р RL Reporting Limit

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S

Date Reported: 2/24/2021

Date Reported: 2/24/2021

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2102310-011

Lab ID:

### Client Sample ID: Trip Blank **Collection Date:**

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.

\* Value exceeds Maximum Contaminant Level.

**Qualifiers:** 

- D Sample Diluted Due to Matrix Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

- в Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit

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WO#:	2102310
	24-Feb-21

Client: Project:	Western H 2021 Gian	Refining S nt Forme	Southwe r Refine	est, Inc. ry								
Sample ID:	MB-57999	Samp	Туре: М	BLK	Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	PBW	Bate	ch ID: 57	7999	F	unNo: 7	5197					
Prep Date:	2/9/2021	Analysis	Date: 2	/10/2021	S	eqNo: 2	655182	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:	LLLCS-57999	Samp	Type: L	CSLL	Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	BatchQC	Bate	ch ID: 57	7999	F	unNo: 7	5197					
Prep Date:	2/9/2021	Analysis	Date: 2	/10/2021	S	eqNo: 2	655184	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	Samp	Type: L	cs	Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	LCSW	Bate	ch ID: 57	7999	RunNo: <b>75197</b>							
Prep Date:	2/9/2021	Analysis	Date: 2	/10/2021	S	eqNo: 2	655186	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	Samp	Туре: М	s	Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	GRW-4	Bate	ch ID: 57	7999	F	unNo: 7	5197					
Prep Date:	2/9/2021	Analysis	Date: 2	/10/2021	S	eqNo: 2	655223	Units: <b>mg/L</b>				
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:	2102310-004DMSE	Samp	Туре: М	SD	Tes	tCode: El	PA Method	200.7: Metals				
Client ID:	GRW-4	Bate	ch ID: 57	/999	F	unNo: 7	5197					
Prep Date:	2/9/2021	Analysis	Date: 2	/10/2021	S	eqNo: 2	655224	Units: <b>mg/L</b>				
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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client: Project:	Western I 2021 Gia	Refining S nt Former	Refine	st, Inc.							
1 Toject.	2021 014			, y							
Sample ID:	2102310-004DMS	Samp	Type: MS	S	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GRW-4	Batc	h ID: 57	999	R	RunNo: 75197					
Prep Date:	2/9/2021	Analysis [	Date: 2/	/10/2021	S	eqNo: 2	655226	Units: <b>mg/L</b>			
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:	2102310-004DMS	J Samp⁻	Гуре: М	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GRW-4	Batc	h ID: 57	999	R	unNo: 7	5197				
Prep Date:	2/9/2021	Analysis [	Date: <b>2</b> /	/10/2021	S	eqNo: 2	655227	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	Samp	Гуре: М	S	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GRW-4	Batc	h ID: 57	999	R	unNo: 7	5310				
Prep Date:	2/9/2021	Analysis [	Date: <b>2</b> /	15/2021	S	eqNo: 2	661067	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:	2102310-004DMS	J Samp⁻	Гуре: М	SD	Tes	tCode: El	PA Method	200.7: Metals			
Client ID:	GRW-4	Batc	h ID: 57	999	R	unNo: 7	5310				
Dury Date											
Prep Date:	2/9/2021	Analysis [	Date: 2,	15/2021	S	eqNo: 2	661071	Units: mg/L			
Analyte	2/9/2021	Analysis I Result	Date: <b>2</b> , PQL	<b>15/2021</b> SPK value	SPK Ref Val	eqNo: <b>2</b> %REC	661071 LowLimit	Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual
Analyte Chromium	2/9/2021	Analysis I Result 0.52	Date: <b>2</b> , PQL 0.0060	<b>15/2021</b> SPK value 0.5000	SPK Ref Val 0.01289	eqNo: 20 %REC 101	661071 LowLimit 70	Units: <b>mg/L</b> HighLimit 130	%RPD 0.341	RPDLimit 20	Qual
Analyte Chromium Sample ID:	2/9/2021 2102310-004DMS	Analysis I Result 0.52 Samp <sup>-</sup>	Date: 2 PQL 0.0060 Fype: M:	SPK value 0.5000	SPK Ref Val 0.01289 Test	eqNo: 20 %REC 101 tCode: EI	661071 LowLimit 70 PA Method	Units: mg/L HighLimit 130 200.7: Metals	%RPD 0.341	RPDLimit 20	Qual
Analyte Chromium Sample ID: Client ID:	2/9/2021 2102310-004DMS GRW-4	Analysis I Result 0.52 Samp <sup>-</sup> Batc	Date: 2 PQL 0.0060 Fype: M3 h ID: 57	215/2021 SPK value 0.5000 S 999	SPK Ref Val 0.01289 Test	GeqNo: 20 %REC 101 tCode: EI	661071 LowLimit 70 PA Method 5310	Units: mg/L HighLimit 130 200.7: Metals	%RPD 0.341	RPDLimit 20	Qual
Analyte Chromium Sample ID: Client ID: Prep Date:	2/9/2021 2102310-004DMS GRW-4 2/9/2021	Analysis I Result 0.52 Samp Batc Analysis I	Date: 2, PQL 0.0060 Fype: M h ID: 57 Date: 2/	215/2021 SPK value 0.5000 S 999 215/2021	SPK Ref Val 0.01289 Tesi R S	SeqNo: 20 %REC 101 COde: EI CunNo: 7 SeqNo: 20	661071 LowLimit 70 PA Method 5310 661073	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L	%RPD 0.341	RPDLimit 20	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte	2/9/2021 2102310-004DMS GRW-4 2/9/2021	Analysis I Result 0.52 Samp <sup>-</sup> Batc Analysis I Result	Date: 2, PQL 0.0060 Fype: M: h ID: 57 Date: 2/ PQL	215/2021 SPK value 0.5000 S 999 215/2021 SPK value	SPK Ref Val 0.01289 Tes R SPK Ref Val	SeqNo: 20 <u>%REC</u> 101 tCode: EI CunNo: 7: SeqNo: 20 %REC	661071 LowLimit 70 PA Method 5310 661073 LowLimit	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte Iron	2/9/2021 2102310-004DMS GRW-4 2/9/2021	Analysis I Result 0.52 Samp Batc Analysis I Result 3.8	Date: 2 PQL 0.0060 Fype: M: h ID: 57 Date: 2 PQL 0.25	Alson and a second seco	SPK Ref Val 0.01289 Test R SPK Ref Val 3.299	SeqNo: 20 %REC 101 Code: El Code: El SeqNo: 20 %REC 98.9	661071 LowLimit 70 PA Method 5310 661073 LowLimit 70	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit 130	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte Iron Sample ID:	2/9/2021 2102310-004DMS GRW-4 2/9/2021 2102310-004DMS	Analysis I Result 0.52 Samp Batc Analysis I Result 3.8 Samp	Date: 2 PQL 0.0060 Fype: M: h ID: 57 Date: 2 PQL 0.25 Fype: M:	15/2021 SPK value 0.5000 S 9999 15/2021 SPK value 0.5000 SD	SPK Ref Val 0.01289 Test R SPK Ref Val 3.299 Test	SeqNo:         2           %REC         101           tCode:         EI           tunNo:         7           SeqNo:         2           %REC         98.9           tCode:         EI	661071 LowLimit 70 PA Method 5310 661073 LowLimit 70 PA Method	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit 130 200.7: Metals	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte Iron Sample ID: Client ID:	2/9/2021 2102310-004DMS GRW-4 2/9/2021 2102310-004DMSI GRW-4	Analysis I Result 0.52 Samp <sup>®</sup> Batc Analysis I Result 3.8 Samp <sup>®</sup> Batc	Date: 2 PQL 0.0060 Fype: M: h ID: 57 Date: 2 PQL 0.25 Fype: M: h ID: 57	115/2021 SPK value 0.5000 S 9999 115/2021 SPK value 0.5000 SD 9999	SPK Ref Val 0.01289 Test SPK Ref Val 3.299 Test R	SeqNo: 20         %REC         101         tCode: EI         SeqNo: 20         %REC         98.9         tCode: EI	661071 LowLimit 70 PA Method 5310 661073 LowLimit 70 PA Method 5310	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit 130 200.7: Metals	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte Iron Sample ID: Client ID: Prep Date:	2/9/2021 2102310-004DMS GRW-4 2/9/2021 2102310-004DMSI GRW-4 2/9/2021	Analysis I Result 0.52 Samp <sup>-</sup> Batc Analysis I Result 3.8 Samp <sup>-</sup> Batc Analysis I	Date: 2 PQL 0.0060 Fype: M: h ID: 57 Date: 2 PQL 0.25 Fype: M: h ID: 57 Date: 2	15/2021 SPK value 0.5000 S 9999 15/2021 SPK value 0.5000 SD 9999 15/2021	SPK Ref Val 0.01289 Test SPK Ref Val 3.299 Test S	SeqNo:         2           %REC         101           tCode:         EI           tunNo:         7           SeqNo:         2           %REC         98.9           tCode:         EI           tunNo:         7           seqNo:         2           seqNo:         7           seqNo:         2	661071 LowLimit 70 PA Method 5310 661073 LowLimit 70 PA Method 5310 661074	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit 130 200.7: Metals Units: mg/L	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit	Qual
Analyte Chromium Sample ID: Client ID: Prep Date: Analyte Iron Sample ID: Client ID: Prep Date: Analyte	2/9/2021 2102310-004DMS GRW-4 2/9/2021 2102310-004DMSI GRW-4 2/9/2021	Analysis I Result 0.52 Samp <sup>-</sup> Batc Analysis I Result 3.8 Samp <sup>-</sup> Batc Analysis I Result	Date: 2 PQL 0.0060 Fype: M: h ID: 57 Date: 2 PQL 0.25 Fype: M: h ID: 57 Date: 2 PQL	715/2021 SPK value 0.5000 S 9999 715/2021 SPK value 0.5000 SD 9999 715/2021 SPK value	SPK Ref Val 0.01289 Tess SPK Ref Val 3.299 Tess R SPK Ref Val	SeqNo: 20 %REC 101 COde: EI Code: EI SeqNo: 20 %REC 98.9 COde: EI Code: EI SeqNo: 7 SeqNo: 20 %REC	661071 LowLimit 70 PA Method 5310 661073 LowLimit 70 PA Method 5310 661074 LowLimit	Units: mg/L HighLimit 130 200.7: Metals Units: mg/L HighLimit Units: mg/L HighLimit	%RPD 0.341 %RPD	RPDLimit 20 RPDLimit RPDLimit	Qual

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- P Sample pH Not In Range
- RL Reporting Limit

Client:	Western	Refining Sou	thwe	st, Inc.							
Project:	2021 Gia	nt Former R	efiner	У							
Sample ID:	MB-57999	SampTyp	De: ME	BLK	Tes	tCode: E	PA Method	200.7: Metals			
Client ID:	PBW	Batch I	D: 57	999	RunNo: <b>75323</b>						
Prep Date:	2/9/2021	Analysis Dat	ie: 2/	16/2021	S	eqNo: 2	661762	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium		ND 0	.0060								
Sample ID:	LLLCS-57999	SampTyp	be: LC	SLL	Tes	tCode: E	PA Method	200.7: Metals			
Client ID:	BatchQC	Batch I	D: 57	999	RunNo: <b>75323</b>						
Prep Date:	2/9/2021	Analysis Dat	ie: 2/	16/2021	S	eqNo: 2	661763	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	SampTyp	be: LC	S	Tes	tCode: E	PA Method	200.7: Metals			
Client ID:	LCSW	Batch I	D: 57	999	F	lunNo: 7	5323				
Prep Date:	2/9/2021	Analysis Dat	ie: 2/	16/2021	S	eqNo: 2	661764	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			

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Reporting Limit

WO#:	2102310
	24-Feb-21

		- 2

Client:	Western	Refining	Southwe	st, Inc.							
Project:	2021 Gia	nt Forme	r Refiner	у							
Sample ID:	MB-57999	Samp	Type: ME	BLK	Tes	tCode:	EPA 200.8: N	letals			
Client ID:	PBW	Bat	ch ID: 57	999	RunNo: <b>75231</b>						
Prep Date:	2/9/2021	Analysis	Date: 2/	11/2021	S	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:	MSLLLCS-57999	Samp	oType: <b>LC</b>	SLL	Tes	tCode:	EPA 200.8: N	letals			
Client ID:	BatchQC	Bat	ch ID: 57	999	RunNo: <b>75231</b>						
Prep Date:	2/9/2021	Analysis	Date: 2/	11/2021	5	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	Samp	oType: LC	S	Tes	tCode:	EPA 200.8: N	letals			
Client ID:	LCSW	Bat	ch ID: 57	999	F	RunNo:	75231				
Prep Date:	2/9/2021	Analysis	Date: 2/	11/2021	Ş	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			

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WO#:	2102310
	24-Feb-21

Client: Project:	Western 2021 Gi	Refining ant Forme	Southwes r Refiner	st, Inc. Y								
Sample ID:	MSLLLCS(TL)-5	<b>7999</b> Samp	oType: LC	SLL	Test	tCode: EF	PA 200.8: N	letals				
Client ID:	BatchQC	Bat	ch ID: 57	999	RunNo: <b>75231</b>							
Prep Date:	e: 2/9/2021 Analysis Date: 2/11/2021				S	SeqNo: 26	656884	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	Bat	ch ID: 57	999	R	RunNo: <b>7</b>	5231					
Client ID: Prep Date:	GRW-10 2/9/2021	Bat Analysis	ch ID: 579 Date: 2/	999 11/2021	R	RunNo: <b>7</b> SeqNo: <b>26</b>	5231 656924	Units: <b>mg/L</b>				
Client ID: Prep Date: Analyte	GRW-10 2/9/2021	Bat Analysis Result	ch ID: <b>57</b> 9 Date: <b>2/</b> PQL	999 11/2021 SPK value	R S SPK Ref Val	RunNo: <b>7</b> 9 SeqNo: <b>26</b> %REC	5231 556924 LowLimit	Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic	GRW-10 2/9/2021	Bat Analysis Result 0.027	ch ID: 579 Date: 2/ PQL 0.0010	999 11/2021 SPK value 0.02500	R S SPK Ref Val 0.0003973	RunNo: <b>7</b> SeqNo: <b>26</b> <u>%REC</u> 105	5231 556924 LowLimit 70	Units: <b>mg/L</b> HighLimit 130	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic Beryllium	GRW-10 2/9/2021	Bat Analysis Result 0.027 0.023	ch ID: 579 Date: 2/ PQL 0.0010 0.0010	999 11/2021 SPK value 0.02500 0.02500	R SPK Ref Val 0.0003973 0	RunNo: <b>7</b> SeqNo: <b>26</b> <u>%REC</u> 105 92.5	5231 556924 LowLimit 70 70	Units: <b>mg/L</b> HighLimit 130 130	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic Beryllium Cadmium	GRW-10 2/9/2021	Bat Analysis Result 0.027 0.023 0.012	ch ID: <b>57</b> 9 Date: <b>2</b> / PQL 0.0010 0.0010 0.00050	999 11/2021 SPK value 0.02500 0.02500 0.01250	R SPK Ref Val 0.0003973 0 0	RunNo: 7 SeqNo: 26 %REC 105 92.5 94.1	5231 556924 LowLimit 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic Beryllium Cadmium Lead	GRW-10 2/9/2021	Bat Analysis Result 0.027 0.023 0.012 0.015	ch ID: 579 Date: 2/ PQL 0.0010 0.00050 0.00050	999 11/2021 SPK value 0.02500 0.02500 0.01250 0.01250	R SPK Ref Val 0.0003973 0 0 0.001471	RunNo: 7 SeqNo: 26 %REC 105 92.5 94.1 107	5231 556924 LowLimit 70 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel	GRW-10 2/9/2021	Bat Analysis Result 0.027 0.023 0.012 0.015 0.031	ch ID: 579 Date: 2/ PQL 0.0010 0.00050 0.00050 0.00050 0.0010	999 11/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.02500	R SPK Ref Val 0.0003973 0 0 0.001471 0.004427	RunNo: 7 SeqNo: 26 %REC 105 92.5 94.1 107 105	5231 556924 LowLimit 70 70 70 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130 130	%RPD	RPDLimit	Qual	
Client ID: Prep Date: Analyte Arsenic Beryllium Cadmium Lead Nickel Silver	GRW-10 2/9/2021	Bat Analysis Result 0.027 0.023 0.012 0.015 0.031 0.012	ch ID: 579 Date: 2/ PQL 0.0010 0.00050 0.00050 0.0010 0.00050	999 11/2021 SPK value 0.02500 0.02500 0.01250 0.01250 0.01250	R SPK Ref Val 0.0003973 0 0.001471 0.004427 0	RunNo: 7 SeqNo: 26 %REC 105 92.5 94.1 107 105 93.4	5231 556924 LowLimit 70 70 70 70 70 70 70 70 70 70	Units: <b>mg/L</b> HighLimit 130 130 130 130 130 130 130	%RPD	RPDLimit	Qual	

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Client:	Western	Refining Southwest, Inc.						
Project:	2021 Gia	ant Former Refinery						
Sample ID:	MB-58036	SampType: MBLK	TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID: 58036	RunNo: <b>75260</b>					
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:	LLLCS-58036	SampType: LCSLL	TestCode: EPA Method 245.1: Mercury					
Client ID:	BatchQC	Batch ID: 58036	RunNo: <b>75260</b>					
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: <b>75260</b>					
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					

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WO#:	2102310
	24-Feb-21

Client: Project:	Western Refining S 2021 Giant Former	outhwes Refiner	st, Inc. y								
Sample ID: MB	SampT	ype: <b>mb</b>	olk	Tes	tCode: EF	PA Method	300.0: Anions	5			
Client ID: PBW	Batch	n ID: <b>R7</b>	5132	F	5132						
Prep Date:	Analysis D	ate: 2/	5/2021	S	SeqNo: 26	652180	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	SampT	ype: Ics		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch	n ID: <b>R7</b>	5132	F	5132						
Prep Date:	Analysis D	Analysis Date: 2/5/2021			SeqNo: 26	652181	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	SampT	ype: <b>mb</b>	olk	Tes	tCode: EF	PA Method	300.0: Anions	;			
Client ID: PBW	Batch	n ID: <b>R7</b>	5187	F	RunNo: 75	5187					
Prep Date:	Analysis D	ate: 2/	9/2021	S	SeqNo: 26	654873	Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Sulfate	ND	0.50									
Sample ID: LCS	SampT	ype: Ics	;	Tes	tCode: EF	PA Method	300.0: Anions	;			
Client ID: LCSW	Batch	n ID: <b>R7</b>	5187	F	RunNo: <b>75</b>	5187					
Prep Date:	Analysis D	ate: 2/	9/2021	S	SeqNo: 26	654874	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				

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P Sample pH Not In Range

RL Reporting Limit

WO#: 2102310 24-Feb-21

Client: V Project: 2	Western Refinin 2021 Giant Forn	g Southwe her Refine	est, Inc. rv							
Sample ID: 100ng Ic	s Sar	npTvpe: LO	 	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: I CSW	B	atch ID: <b>R</b> 7	75222	F	RunNo: 7	5222				
Prep Date:	Analys	is Date: 2	/10/2021	, i	SeqNo: 2	656576	Units: µg/L			
Analyte	Resu	t PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2	2 1.0	20.00	0	112	70	130			
Toluene	2	0 1.0	20.00	0	97.6	70	130			
Chlorobenzene	1	9 1.0	20.00	0	95.9	70	130			
1,1-Dichloroethene	2	0 1.0	20.00	0	101	70	130			
Trichloroethene (TCE)	1	9 1.0	20.00	0	95.5	70	130			
Surr: 1,2-Dichloroethane	-d4 1	1	10.00		107	70	130			
Surr: 4-Bromofluorobenz	ene 9.1	9	10.00		99.5	70	130			
Surr: Dibromofluorometh	ane 1	1	10.00		111	70	130			
Surr: Toluene-d8	9.1	7	10.00		97.1	70	130			
Sample ID: 100ng Ics2 SampType: LCS TestCode: EPA Method 8260B								ATILES		
Client ID: LCSW	В	atch ID: R7	75222	F	RunNo: <b>7</b>	5222				
Prep Date: Analysis Date: 2/10/2021			S	SeqNo: 2656577 Units: μg/L						
Analyte	Resu	t PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2	2 1.0	20.00	0	109	70	130			
Toluene	2	0 1.0	20.00	0	98.3	70	130			
Chlorobenzene	1	9 1.0	20.00	0	94.6	70	130			
1,1-Dichloroethene	2	0 1.0	20.00	0	102	70	130			
Trichloroethene (TCE)	1	3 1.0	20.00	0	91.6	70	130			
Surr: 1,2-Dichloroethane	-d4 1	C	10.00		100	70	130			
Surr: 4-Bromofluorobenz	ene 1	C	10.00		101	70	130			
Surr: Dibromofluorometh	ane 1	1	10.00		106	70	130			
Surr: Toluene-d8	9.	3	10.00		96.5	70	130			
Sample ID: mb	Sar	npType: <b>M</b>	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	В	atch ID: R	75222	F	RunNo: 7	5222				
Prep Date:	Analys	is Date: 2	/10/2021	S	SeqNo: 2	656603	Units: µg/L			
Analyte	Resu	t PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	N	D 1.0								
Toluene	N	0 1.0								
Ethylbenzene	N	) 1.0								
Methyl tert-butyl ether (MTI	BE) NI	0 1.0								
1,2,4-Trimethylbenzene	N	0 1.0								
1,3,5-Trimethylbenzene	N	D 1.0								
1,2-Dichloroethane (EDC)	N	D 1.0								
1,2-Dibromoethane (EDB)	N	) 1.0								
Naphthalene	N	2.0								
1-Methylnaphthalene	N	9 4.0								

#### **Qualifiers:**

Value exceeds Maximum Contaminant Level. \*

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit PQL Practical Quanitative Limit

% Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

WO#:	2102310
	24-Feb-21

Client: Wester Project: 2021 (	ern Refining So Giant Former I	outhwe Refine	est, Inc. ry							
Sample ID: mb	SampTy	/pe: <b>M</b>	BLK	Te	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: <b>PBW</b>	Batch		75222		RunNo: 7	75222				
	Daton	ID. KI	JZZZ							
Prep Date:	Analysis Da	ate: 2	/10/2021		SeqNo: 2	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#: 2102310 24-Feb-21

Client:WesterProject:2021 C	rn Refining S Biant Former	outhwe Refiner	st, Inc. Y								
Sample ID: mb	Samp1	Гуре: МЕ	BLK	Tes	stCode: E	PA Method	8260B: VOL	ATILES			_
Client ID: PBW	Batc	h ID: <b>R7</b>	5222	1	RunNo: <b>75222</b>						
Prep Date:	Analysis E	Date: 2/	10/2021	;	SeqNo: 2	656603	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	SampT	Гуре: МЕ	BLK	Tes	stCode: E	PA Method	8260B: VOL	ATILES			
Client ID: PBW	Batc	h ID: W7	75222	I	RunNo: 7	5222					
Prep Date:	Analysis E	Date: 2/	10/2021	:	SeqNo: 2	656604	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 Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in 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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WO#:	2102310
	24-Feb-21

Client:WesterProject:2021	rn Refining S Giant Former	outhwe Refine	est, Inc. ry							
Sample ID: mb2	SampT	vpe: M	BLK	Tes	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: <b>PBW</b>	Batch	י שיי	75222		RunNo: 7	75222				
Bron Doto:	Analysia D		10222				linito:			
Prep Date:	Analysis D		/10/2021		Sequo: 4	200004	Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0	1							
Bromoform	ND	1.0	1							
Bromomethane	ND	3.0	1							
2-Butanone	ND	10	1							
Carbon disulfide	ND	10	1							
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0	1							
Chloroform	ND	1.0	1							
Chloromethane	ND	3.0	1							
2-Chlorotoluene	ND	1.0	1							
4-Chlorotoluene	ND	1.0	1							
cis-1,2-DCE	ND	1.0	1							
cis-1,3-Dichloropropene	ND	1.0	I							
1,2-Dibromo-3-chloropropane	ND	2.0	I.							
Dibromochloromethane	ND	1.0	1							
Dibromomethane	ND	1.0	1							
1,2-Dichlorobenzene	ND	1.0	1							
1,3-Dichlorobenzene	ND	1.0	1							
1,4-Dichlorobenzene	ND	1.0	1							
Dichlorodifluoromethane	ND	1.0	I							
1,1-Dichloroethane	ND	1.0	1							
1,1-Dichloroethene	ND	1.0	1							
1.2-Dichloropropane	ND	1.0	1							
1.3-Dichloropropane	ND	1.0	1							
2.2-Dichloropropane	ND	2.0	1							
1 1-Dichloropropene	ND	1.0	1							
Hexachlorobutadiene	ND	1.0	1							
2-Hexanone	ND	10								
Isonronylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	1.0								
Methylene Chloride	ND	30 30								
n-Rutylbenzene	ND	3.0 3.0								
n-Pronvlbenzene		1 0								
sec-Butylbenzene		1.0								
Sturana		1.0								
tert-Butylbenzene		1.0								
1 1 1 2-Tetrachloroothano		1.0								
1, 1, 1, 2 <sup>-</sup> 1 Cli au IIUI UCLI IAI IC	IND	1.0								

#### Qualifiers:

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

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

WO#:	2102310
	24-Feb-21

Client: Wester	n Refining S	outhwes	st, Inc.								
<b>Project:</b> 2021 G	iant Former	Refiner	У								
Sample ID: mb2	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES			
Client ID: <b>PBW</b>	Batch	n ID: W7	5222	F	RunNo: 7						
Prep Date:	Analysis D	ate: <b>2/</b>	10/2021	S	SeqNo: 2	656604	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	SampT	ype: LC	S	Tes	tCode: El	PA Method	8260B: VOL	ATILES			
Client ID: LCSW	Batch	n ID: <b>R7</b>	5246	F	RunNo: 7						
Prep Date:	Analysis D	ate: 2/	11/2021	S	SeqNo: 2	657558	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	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8260B: VOL	ATILES			
Client ID: PBW	Batch	n ID: <b>R7</b>	5246	F	RunNo: 7	5246					
Prep Date:	Analysis D	ate: 2/	11/2021	S	SeqNo: 2	657559	Units: µg/L				
Analyte	Decult					Low/ imit	Highl imit	%RPD	RPDI imit	Qual	
	Result	FQL	SFR value	SFR Rei Val	/0KLC	LOWLININ	riigiiciiniit		IN DEITIN	Quu	
Benzene	ND	1.0	SFR Value	SFR Rei Vai	/0REC	LOWEIIIII	I light link			Quai	

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#:	2102310
	24-Feb-21

Client:WesterProject:2021 C	rn Refining S Giant Former	outhw Refine	est, Inc. ery							
Sample ID: mb	SampT	vpe: N	IBLK	Те	stCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Batch	חור <b>פ</b>	75246		RunNo: 7	75246				
	Datci		1 5240							
Prep Date:	Analysis L	ate: 2	2/11/2021		SeqNo: 2	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.(	)							
2-Methylnaphthalene	ND	4.0	)							
Acetone	ND	1(	)							
Bromobenzene	ND	1.0	)							
Bromodichloromethane	ND	1.0	)							
Bromoform	ND	1.0	)							
Bromomethane	ND	3.0	)							
2-Butanone	ND	1(	)							
Carbon disulfide	ND	1(	)							
Carbon Tetrachloride	ND	1 (	) )							
Chlorobenzene	ND	1.0	) )							
Chloroethane	ND	20	, )							
Chloroform		2.0	, )							
Chloromothano		20	)							
		1.0	) )							
		1.0	)							
	ND	1.0	)							
CIS-1,2-DUE	ND	1.0	)							
cis-1,3-Dicnioropropene	ND	1.0	)							
1,2-Dibromo-3-chloropropane	ND	2.0	)							
Dibromochloromethane	ND	1.(	)							
Dibromomethane	ND	1.(	)							
1,2-Dichlorobenzene	ND	1.(	)							
1,3-Dichlorobenzene	ND	1.0	)							
1,4-Dichlorobenzene	ND	1.0	)							
Dichlorodifluoromethane	ND	1.(	)							
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.(	)							

#### Qualifiers:

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

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

WO#: 2102310 24-Feb-21

Client: V	Vestern Refining	Southwe	st, Inc.							
Project: 2	021 Giant Forme	r Refinei	y							
Sample ID: mb	Samp	оТуре: <b>МЕ</b>	BLK	Tes	tCode: E	PA Method	8260B: VOL	ATILES		
Client ID: PBW	Bat	ch ID: <b>R7</b>	5246	F	RunNo: 7	5246				
Prep Date:	Analysis	Date: 2/	11/2021	S	SeqNo: 2	657559	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-Bromofluorobenz	ene 9.2		10.00		92.3	70	130			
Surr: Dibromofluorometh	ane 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 Quanitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in 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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1.2

1.2

1.2

1.2

1.2

1.3

1.3

1.5

1.4

1.6

1.6

0.10

0.10

0.10

0.10

0.10

0.10

0.10

0.20

0.20

0.10

0.10

2.000

2.000

2.000

2.000

2.000

2.000

2.000

2.000

2.000

2.000

2.000

WO#: 2102310 24-Feb-21

Client: Weste	rn Refining S	outhwe	st, Inc.							
<b>Project:</b> 2021	Giant Former	Refiner	У							
Sample ID: mb-57991	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8270SIM			
Client ID: PBW	Batcl	h ID: 57	991	F	RunNo: 7	5376				
Prep Date: 2/9/2021	Analysis E	Date: 2/	16/2021	S	SeqNo: 2	663900	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: Ics-57991	SampT	ype: LC	S	Tes	tCode: El	PA Method	8270SIM			
Client ID: LCSW	Batc	h ID: <b>57</b>	991	F	RunNo: <b>7</b>	5376				
Prep Date: 2/9/2021	Analysis E	Date: 2/	16/2021	S	SeqNo: 2	663901	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			

**Qualifiers:** 

1-Methylnaphthalene

2-Methylnaphthalene

Acenaphthylene

Acenaphthene

Phenanthrene

Anthracene

Fluoranthene

Benz(a)anthracene

Pyrene

Chrysene

Fluorene

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

S % Recovery outside of range due to dilution or matrix

59.0

59.0

60.0

60.0

61.0

64.0

64.0

74.0

70.0

78.0

79.0

15.1

18.2

23.9

16.8

23.3

15.4

38.7

32.6

15

15

15

89.6

90.6

95.3

90.3

106

105

112

138

128

111

96.6

0

0

0

0

0

0

0

0

0

0

0

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

B Analyte detected in the associated Method Blank

WO#: 2102310 24-Feb-21

Client:	Western Refin	ing Soutl	nwest, Inc.								
Project:	2021 Giant Fo	rmer Ref	inery								
Sample ID: Ics-579	91 S	ampType	LCS		Test	tCode: E	PA Method	8270SIM			
Client ID: LCSW		Batch ID:	57991		R	RunNo: 7	5376				
Prep Date: 2/9/202	21 Anal	ysis Date:	2/16/2021		S	SeqNo: 2	663901	Units: µg/L			
Analyte	Re	sult P	QL SPK va	alue SF	PK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(b)fluoranthene		1.5 C	).10 2.	000	0	74.0	23.8	113			
Benzo(k)fluoranthene		1.5 C	).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 C	).10 2.	000	0	73.0	17.8	118			
Benzo(g,h,i)perylene		1.5 C	).10 2.	000	0	73.0	22.2	110			
Indeno(1,2,3-cd)pyrene		1.6 C	.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: Icsd-57	991 S	ampType	LCSD	8270SIM							
Client ID: LCSS02	2	Batch ID:	57991		R	RunNo: 7	5376				
Prep Date: 2/9/202	21 Anal	ysis Date:	2/16/2021		S	SeqNo: 2	663902	Units: µg/L			
Analyte	Re	sult P	QL SPK va	alue SF	PK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene		1.4 C	).10 2.	.000	0	70.0	18.5	83.4	17.1	20	
1-Methylnaphthalene		1.4 C	).10 2.	000	0	70.0	15.1	89.6	17.1	20	
2-Methylnaphthalene		1.4 C	).10 2.	000	0	70.0	15	90.6	17.1	20	
Acenaphthylene		1.4 C	).10 2.	000	0	71.0	18.2	95.3	16.8	20	
Acenaphthene		1.4 C	).10 2.	000	0	72.0	23.9	90.3	18.2	20	
Fluorene		1.5 C	).10 2.	000	0	73.0	16.8	106	17.9	20	
Phenanthrene		1.5 C	).10 2.	000	0	74.0	23.3	105	14.5	20	
Anthracene		1.5 C	).10 2.	000	0	75.0	15	112	15.8	20	
Fluoranthene		1.7 C	).20 2.	000	0	84.0	15.4	138	12.7	20	
Pyrene		1.6 C	).20 2.	000	0	78.0	15	128	10.8	20	
Benz(a)anthracene		1.7 C	).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 C	).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 0.0	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)pervlene		1.6 0	).10 2.	000	0	80.0	22.2	110	9.15	20	
Indeno(1,2,3-cd)pyrene		1.7 C	).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-Fluorobiphenvl		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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Client:	West	tern Refining S	outhwe	st, Inc.							
Project:	2021	Giant Former	Refiner	у							
Sample ID:	MB-58047	SampT	ype: ME	BLK	Tes	tCode: SN	M2540C MC	DD: Total Dise	solved So	lids	
Client ID:	PBW	Batch	n ID: <b>58</b>	047	F	RunNo: <b>7</b>	5241				
Prep Date:	2/10/2021	Analysis D	)ate: 2/	11/2021	5	SeqNo: 26	657122	Units: <b>mg/L</b>			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved	Solids	ND	20.0								
Sample ID:	LCS-58047	SampT	ype: LC	s	Tes	tCode: SI	M2540C MC	DD: Total Diss	olved So	lids	
Client ID:	LCSW	Batch	ו ID: <b>58</b>	047	F	RunNo: <b>7</b>	5241				
Prep Date:	2/10/2021	Analysis D	)ate: 2/	11/2021	5	SeqNo: 26	657123	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
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits Р
- Sample pH Not In Range
- RL Reporting Limit

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 HALL
 Hall Environmental Analysis Laboratory

 ENVIRONMENTAL
 4901 Hawkins NE

 ANALYSIS
 Albuquerque, NM 87109

 LABORATORY
 TEL: 505-345-3975 FAX: 505-345-4107

 Website: clients.hallenvironmental.com

 Client Name:
 Western Refining Southwest, Inc.

### Sample Log-In Check List

Client Name: Western Southwe	Refining st, Inc.	Work Order Number	210	2310			RcptN	o: 1
Received By: Sean Li	vingston	2/5/2021 8:00:00 AM			S.	_L	not	
Completed By: Sean Li	vingston	2/5/2021 8:46:02 AM			$\leq$	/	in the	
Reviewed By: DAD O (300 COMDO: ENH	2/08/21 1 215/21)						, Jei	
Chain of Custody								
1. Is Chain of Custody con	nplete?		Yes	$\checkmark$	No		Not Present 🗌	
2. How was the sample de	livered?		<u>Cou</u>	rier				
Log In								
3. Was an attempt made to	o cool the samples?		Yes	$\checkmark$	No		NA 🗌	
4. Were all samples receive	ed at a temperature o	f >0° C to 6.0°C	Yes		No			
5. Sample(s) in proper con	tainer(s)?		Yes	$\checkmark$	No			
6. Sufficient sample volume	e for indicated test(s)?		Yes	$\checkmark$	No			
7. Are samples (except VO	A and ONG) properly	preserved?	Yes	$\checkmark$	No			
8. Was preservative added	to bottles?		Yes		No	$\checkmark$	NA 🗌	
9. Received at least 1 vial v	with headspace <1/4"	for AQ VOA?	Yes	$\checkmark$	No			
10. Were any sample contain	iners received broken	?	Yes		No	$\checkmark$		
11. Does paperwork match t (Note discrepancies on c	oottle labels? chain of custody)		Yes		No		# of preserved bottles checked for pH:	or >12 unless noted)
12. Are matrices correctly ide	entified on Chain of C	ustody?	Yes	$\checkmark$	No		Adjusted?	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
13. Is it clear what analyses	were requested?		Yes	$\checkmark$	No			
14. Were all holding times al	ble to be met?		Yes	$\checkmark$	No		Checked by:	
(If no, notify customer for	r authorization.)						(30) com 60;	10(2)/10
Special Handling (if a	oplicable)							2,15120
15. Was client notified of all	discrepancies with th	is order?	Yes		No		NA 🗹	210120
Person Notified:		Date:		VERSIONALE CONS	Er E Hernard Schulzer - Er 1900 An	on-sancar		
By Whom:		Via:	eM	ail 🗌	Phone	] Fax	In Person	
Regarding: Client Instructions								

16. Additional remarks:

### 17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.9	Good	Yes			a name and and a local sector of the sector
2	1.3	Good	Yes			
3	2.1	Good	Yes			
4	1.4	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-trimetnyibenzene	acenaphthene
1,5,5-efficiencybenzene	fluorene
1,2-dibromoethane (EDB)	phenanthrene
nanhthalene	dittriacene
1-methylnaphthalene	nyrene
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-dichloropropopo	beryllium
1 2-dibromo-3-chloropropage	cadmium*
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-isopropytoluene	
4-methylene chloride	
n-butylene chloride	
n-pronvibenzene	
sec-butvlbenzene	
stvrene	
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	

\* - asterisks denotes RCRA 8 Metal

Lab Order 2103574

#### Hall Environmental Analysis Laboratory, Inc. Date Reported:

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 

Lab ID:

2103574-001

Client Sample ID: GBR-18 Collection Date: 3/10/2021 12:30:00 PM

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:	МН
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

Matrix: AQUEOUS

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

\* **Qualifiers:** 

D Sample Diluted Due to Matrix

Value exceeds Maximum Contaminant Level. Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit Page 1 of 0

S % Recovery outside of range due to dilution or matrix

Lab Order 2103574

#### Date Reported:

<b>CLIENT:</b>	Western Refining Southwest, Inc.

Hall Environmental Analysis Laboratory, Inc.

**Project:** 2021 Giant Former Refinery

Lab ID: 2103574-001

Client Sample ID: GBR-18 Collection Date: 3/10/2021 12:30:00 PM

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	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Toluene	ND	1.0	Р	μg/L	1	3/16/2021 2:07:14 AM	A75948
Ethylbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Methyl tert-butyl ether (MTBE)	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,4-Trimethylbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,3,5-Trimethylbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichloroethane (EDC)	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dibromoethane (EDB)	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Naphthalene	ND	2.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1-Methylnaphthalene	ND	4.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Methylnaphthalene	ND	4.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Acetone	ND	10	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromodichloromethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromoform	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Bromomethane	ND	3.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Butanone	ND	10	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Carbon disulfide	ND	10	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
Carbon Tetrachloride	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chlorobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloroethane	ND	2.0	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloroform	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Chloromethane	ND	3.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Chlorotoluene	ND	1.0	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Chlorotoluene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
cis-1,2-DCE	ND	1.0	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
cis-1,3-Dichloropropene	ND	1.0	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dibromo-3-chloropropane	ND	2.0	Ρ	µg/L	1	3/16/2021 2:07:14 AM	A75948
Dibromochloromethane	ND	1.0	Р	µq/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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded Not Detected at the Reporting Limit

ND PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 2 of 0

S % Recovery outside of range due to dilution or matrix

Hall Er	nvironmental Analysis	Laboratory, Inc	•				Lab Order <b>2103574</b> Date Reported:	
CLIENT: Project: Lab ID:	Western Refining Southwest, Inc 2021 Giant Former Refinery 2103574-001	e. Matrix: AQUEOUS	Cl	lient Sa Collect Recei	ample I tion Dat ved Dat	<b>D:</b> Gl te: 3/1 te: 3/1	BR-18 10/2021 12:30:00 PM 11/2021 7:50:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	THOD 8260B: VOLATILES						Analyst	JMR
Dibromo	methane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichl	lorobenzene	ND	1.0	Р	μg/L	1	3/16/2021 2:07:14 AM	A75948
1,3-Dichl	lorobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,4-Dichl	lorobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Dichloro	difluoromethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichl	loroethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichl	loroethene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2-Dichl	loropropane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,3-Dichl	loropropane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
2,2-Dichl	loropropane	ND	2.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1-Dichl	loropropene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Hexachlo	probutadiene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
2-Hexan	one	ND	10	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Isopropy	lbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Isoprop	pyltoluene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
4-Methyl	-2-pentanone	ND	10	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Methyler	ne Chloride	ND	3.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
n-Butylbe	enzene	ND	3.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
n-Propyll	benzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
sec-Buty	lbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Styrene		ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
tert-Buty	lbenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,1,2-T	etrachloroethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,2,2-T	etrachloroethane	ND	2.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Tetrachle	proethene (PCE)	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
trans-1,2	2-DCE	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
trans-1,3	B-Dichloropropene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,3-Tri	chlorobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,4-Tri	chlorobenzene	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,1-Tri	chloroethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,1,2-Tri	chloroethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Trichloro	ethene (TCE)	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
Trichloro	fluoromethane	ND	1.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948
1,2,3-Tri	chloropropane	ND	2.0	Р	µg/L	1	3/16/2021 2:07:14 AM	A75948

ND

ND

97.8

94.0

98.9

> Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information. В Analyte detected in the associated Method Blank

1

1

1

1

1

3/16/2021 2:07:14 AM

Е Value above quantitation range

µg/L

µg/L

%Rec

%Rec

%Rec

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

1.0

1.5

70-130

70-130

70-130

Ρ

Ρ

Ρ

Р

Ρ

Page 3 of 0

A75948

A75948

A75948

A75948

A75948

PQL Practical Quanitative Limit % Recovery outside of range due to dilution or matrix S

Holding times for preparation or analysis exceeded

Value exceeds Maximum Contaminant Level.

Sample Diluted Due to Matrix

Not Detected at the Reporting Limit

Vinyl chloride

Xylenes, Total

**Qualifiers:** 

Surr: 1,2-Dichloroethane-d4

Surr: 4-Bromofluorobenzene

Surr: Dibromofluoromethane

\*

D

Н

ND

Hall Er	Hall Environmental Analysis Laboratory, Inc.				Date Reported:					
CLIENT:	Western Refining Southwest, Inc.		C	lient Sa	ample I	D:G	BR-18			
Project:	2021 Giant Former Refinery		(	Collect	ion Dat	e: 3/	10/2021 12:30:00 PM			
Lab ID:	2103574-001	Matrix: AQUEOUS		Recei	ved Dat	e: 3/	11/2021 7:50:00 AM			
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA MET	HOD 8260B: VOLATILES						Analyst	JMR		
Surr: 1	Toluene-d8	103 7	0-130	Р	%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. D Sample Diluted Due to Matrix

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 4 of 0

S % Recovery outside of range due to dilution or matrix

Lab Order 2103574

Date Reported:

### Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery **Project:** 2103574-002

Lab ID:

Client Sample ID: GRW-1 Collection Date: 3/10/2021 1:00:00 PM 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:	МН
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

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

Analyte detected in the associated Method Blank в

Е Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 5 of 0

S % Recovery outside of range due to dilution or matrix
**Analytical Report** 

Lab Order 2103574

#### Date Reported:

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.

2021 Giant Former Refinery Project:

Lab ID:

Client Sample ID: GRW-1 Collection Date: 3/10/2021 1:00:00 PM

2103574-002

Received Date: 3/11/2021 7:50:00 AM

**DE O I DE U** 

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		µq/L	1	3/16/2021 2:35:49 AM	A75948

Matrix: AQUEOUS

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 6 of 0

S % Recovery outside of range due to dilution or matrix

**Analytical Report** 

Lab Order 2103574

Hall Er	nvironmental Analysis	Laboratory, Inc	•				Date Reported:	
CLIENT:	Western Refining Southwest, Inc.		Cl	lient Sa	ample I	D: GI	RW-1	
Project:	2021 Giant Former Refinery			Collect	ion Dat	t <b>e:</b> 3/1	0/2021 1:00:00 PM	
Lab ID:	2103574-002	Matrix: AQUEOUS		Receiv	ved Dat	t <b>e:</b> 3/1	1/2021 7:50:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	THOD 8260B: VOLATILES						Analyst	: JMR
Dibromo	methane	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1,2-Dichl	lorobenzene	ND	1.0		μg/L	1	3/16/2021 2:35:49 AM	A75948
1,3-Dichl	lorobenzene	ND	1.0		μg/L	1	3/16/2021 2:35:49 AM	A75948
1,4-Dichl	lorobenzene	ND	1.0		μg/L	1	3/16/2021 2:35:49 AM	A75948
Dichloroo	difluoromethane	ND	1.0		μg/L	1	3/16/2021 2:35:49 AM	A75948
1,1-Dichl	loroethane	ND	1.0		μg/L	1	3/16/2021 2:35:49 AM	A75948
1,1-Dichl	loroethene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A75948
1.2-Dichl	loropropane	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
1.3-Dichl	loropropane	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
2.2-Dichl	loropropane	ND	2.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
1.1-Dichl	loropropene	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
Hexachlo	probutadiene	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
2-Hexand	one	ND	10		ua/L	1	3/16/2021 2:35:49 AM	A75948
Isopropy	lbenzene	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
4-Isopror	pyltoluene	ND	1.0		ua/L	1	3/16/2021 2:35:49 AM	A75948
4-Methyl	-2-pentanone	ND	10		ua/l	1	3/16/2021 2:35:49 AM	A75948
Methylen	e Chloride	ND	3.0		µg/=	1	3/16/2021 2:35:49 AM	A75948
n-Butylbe	enzene	ND	3.0		µg/= µg/l	1	3/16/2021 2:35:49 AM	A75948
n-Propyli	benzene	ND	1.0		µg/⊏ ⊔a/l	1	3/16/2021 2:35:49 AM	A75948
sec-Buty	lbenzene	ND	1.0		μg/L μα/Ι	1	3/16/2021 2:35:49 AM	A75948
Styrene		ND	1.0		μg/L μα/Ι	1	3/16/2021 2:35:49 AM	A75948
tert-Butvl	Ihanzana	ND	1.0		μg/L μα/Ι	1	3/16/2021 2:35:49 AM	Δ75948
1 1 1 2-T	Tetrachloroethane	ND	1.0		μg/L	1	3/16/2021 2:35:40 AM	A75048
1 1 2 2-T		ND	2.0		μg/L	1	3/16/2021 2:35:40 AM	A75048
Tetrachic		ND	2.0		µg/L	1	3/16/2021 2:35:49 AM	A750/8
trans_1.2		ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A750/8
trans-1,2	-DCL B-Dichloropropene	ND	1.0		µg/L	1	3/16/2021 2:35:49 AM	A750/8
1 2 2 Tri	chlorobonzono		1.0		µg/∟ ug/l	1	3/16/2021 2:35:49 AM	A75049
1,2,3-110 1 2 4 Trid			1.0		µg/∟ ug/l	1	3/16/2021 2:35:49 AM	A75049
1,2,4-110	chloroothana		1.0		µg/∟ ug/l	1	3/16/2021 2:35:49 AM	A75049
1 1 2 Triv	chloroethane		1.0		µg/∟ ⊔g/!	1	3/16/2021 2:30:43 AIVI	A75010
Trichloro			1.0		µg/∟ ⊔g/!	1	3/16/2021 2:33:49 AIVI	A75010
Trichloro	fluoromethane		1.0		µg/∟ ⊔a/I	1	3/16/2021 2:35:49 AM	A75012
	chloropropapa		1.0		µg/∟ ⊔g/!	1	3/16/2021 2:33:49 AIVI	A75010
1,2,3-1110	oride		2.0		µg/∟ ug/l	1	3/16/2021 2.33.49 AIVI	A75040
Viriyi Chi			1.0		µg/∟ ⊔g/!	1	3/16/2021 2.33.49 AN	A7E040
Ayleries,	i ulai 1.2 Dichloroothono d4		C.I		µy/∟ %₽aa	1	3/10/2021 2:33:49 AM	A75040
Sull: 1		91.U /	0-130		%Rec	1	3/10/2021 2:33:49 AM	A75040
Sull: 4		39.0 /	0-130			1	3/10/2021 2:33:49 AM	A75040
Sun: L	JUDIOIIUUIUIUIIEIIIdhe	90.1 /	0-130		70ReC	1	J/10/2021 2:33:49 AIV	HI 0940

#### . • • - -.

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

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank Е

Value above quantitation range J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Page 7 of 0

S % Recovery outside of range due to dilution or matrix

Hall Er	all Environmental Analysis Laboratory, Inc.				Date Reported:						
CLIENT:	Western Refining Southwest, Inc.		C	lient Sa	ample I	D:G	RW-1				
Project:	2021 Giant Former Refinery		(	Collect	tion Dat	e: 3/	10/2021 1:00:00 PM				
Lab ID:	2103574-002	Matrix: AQUEOUS		Recei	ved Dat	e: 3/	11/2021 7:50:00 AM				
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch			
EPA MET	HOD 8260B: VOLATILES						Analyst	: JMR			
Surr: 1	Toluene-d8	108 7	0-130		%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. D Sample Diluted Due to Matrix

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Limit

Page 8 of 0

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

OrderNo.: 2104244

RE: 2021 Giant Former Refinery

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,

andy

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 4/20/2021

CLIENT:	Western Refining Southwest, Inc.		Cl	ient Sa	ample I	D:GB	R-48	
Project.	2021 Giant Former Refinery		(	~ollect	ion Da	te• 4/6	/2021 9·15·00 AM	
I ah ID.	2104244_001	Matrix: AOI	FOUS	Recei	vod Da	to• 1/7	/2021 9:13:00 AM	
	2104244-001	Matrix. AQU	2003	Netei	veu Da	ic. 4/ //	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
Berylliun	n	ND	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Cadmiur	n	ND	0.00050		mg/L	1	4/8/2021 3:00:14 PM	A76553
Chromiu	m	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
Seleniun	n	0.012	0.0010		mg/L	1	4/8/2021 3:00:14 PM	A76553
Ihallium		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
Berylliun	n	ND	0.0010		mg/L	1	4/12/2021 11:15:46 AM	59306
Cadmiur	n	ND	0.00050		mg/L	1	4/12/2021 11:15:46 AM	59306
Chromiu	m	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
Seleniun	n	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 5310	B: DOC						Analyst:	AG
Organic	Carbon, Dissolved	1.6	1.0		mg/L	1	4/13/2021 12:11:15 AM	A76640
EPA ME	THOD 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
SM25400	C MOD: TOTAL DISSOLVED SOLI	DS					Analyst:	KS
Total Dis	solved Solids	3410	100	*D	mg/L	1	4/9/2021 2:30:00 PM	59292
EPA ME	THOD 200.7: DISSOLVED METALS	6					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
Mangan	ese	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 ME	THOD 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

Hall Environmental Analysis Laboratory, Inc.

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

Qualifiers: \* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

 B
 Analyte detected in 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 1 of 20

S % Recovery outside of range due to dilution or matrix

### Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.Project:2021 Giant Former RefineryLab ID:2104244-001Matrix:AQ

Date Reported: 4/20/2021

	Result	RL Qual Units DF Date Analyzed	Ba
	Matrix: AQUEOUS	<b>Received Date:</b> 4/7/2021 8:42:00 AM	
		Collection Date: 4/6/2021 9:15:00 AM	
nc.		Client Sample ID: GBR-48	

Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS					Analys	t: ELS
Manganese	0.38	0.0020	* mg/L	1	4/9/2021 9:22:39 AM	59306
EPA METHOD 245.1: MERCURY					Analys	t: 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.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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Han Environmental Analysis L		, mc.				Date Reported: 4/20/202	21
CLIENT: Western Refining Southwest, Inc.		Cl	lient S	ample I	D: GE	BR-50	
<b>Project:</b> 2021 Giant Former Refinery		(	Collec	tion Dat	t <b>e:</b> 4/6	0/2021 10:15:00 AM	
<b>Lab ID:</b> 2104244-002	Matrix: AQUE	EOUS	Rece	ived Dat	t <b>e:</b> 4/7	2/2021 8:42:00 AM	
Analyses	Result	RL	Qua	l 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 SOLIE	DS					Analyst	: KS
Total Dissolved Solids	3100	20.0	*	mg/L	1	4/9/2021 2:30:00 PM	59292

### Hall Environmental Analysis Laboratory Inc

\* Value exceeds Maximum Contaminant Level. в Analyte detected in the associated Method Blank

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

0.0020

0.020

0.0020

0.0050

0.0030

0.050

0.0080

0.0093

0.0091

0.060

ND

ND

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

**EPA METHOD 200.7: DISSOLVED METALS** 

**EPA METHOD 200.7: METALS** 

Barium

Manganese

Iron

Silver

Barium

**Qualifiers:** 

Iron

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range RL Reporting Limit

mg/L

mg/L

mg/L

mg/L

mg/L

mg/L

1

1

1

1

1

1

Page 3 of 20

Analyst: ELS

Analyst: ELS

A76547

A76547

A76547 B76619

59306

59306

4/8/2021 10:42:44 AM

4/8/2021 10:42:44 AM

4/8/2021 10:42:44 AM

4/12/2021 9:09:42 AM

4/9/2021 9:23:58 AM

4/9/2021 9:23:58 AM

% Recovery outside of range due to dilution or matrix S

**Analytical Report** 

### Hall Environmental Analysis Laboratory, Inc.

Lab Order 2104244 Date Reported: 4/20/2021

<b>CLIENT:</b>	Western Refining Southwest, Inc.	Client Sample ID: GBR-50						
Project:	2021 Giant Former Refinery		Col	lection Date	<b>:</b> 4/6	/2021 10:15:00 AM		
Lab ID:	2104244-002	Matrix: AQUEOUS	Re	eceived Date	<b>::</b> 4/7	/2021 8:42:00 AM		
Analyses		Result	RL Q	ual Units	DF	Date Analyzed	Batch	
EPA MET	HOD 200.7: METALS					Analyst:	ELS	
Mangane	ese	0.018 0	.0020	mg/L	1	4/9/2021 9:23:58 AM	59306	
EPA MET	HOD 245.1: MERCURY					Analyst:	ags	
Mercury		ND 0.1	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. D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range

RL Reporting Limit

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S % Recovery outside of range due to dilution or matrix

Date Reported: 4/20/2021

Batch

	un Environmentur Maujois Euboratory,						Date Reported: 4/20/2021			
CLIENT: Project:	Western Refining Southwest, Inc. 2021 Giant Former Refinery			Cl	lient Sample I Collection Da	<b>D:</b> Gl te: 4/6	3R-32 5/2021 11:30:00	AM		
Lab ID:	2104244-003	Matrix:	AQUEOU	JS	Received Da	te: 4/7	7/2021 8:42:00 A	AM		
Analyses		Re	esult	RL	Qual Units	DF	Date Analyzed	l	Bato	
EPA 200.	8: DISSOLVED METALS						A	Analyst	: bcv	
Arsenic			ND	0.0010	mg/L	1	4/8/2021 3:05:39	9 PM	A765	
Beryllium	1		ND	0.0010	mg/L	1	4/8/2021 3:05:39	9 PM	A765	
Cadmiun	n		ND	0.00050	mg/L	1	4/8/2021 3:05:39	9 PM	A765	
Chromiu	m		ND	0.0010	mg/L	1	4/8/2021 3:05:39	9 PM	A765	
Lead			ND	0.00050	mg/L	1	4/8/2021 3:05:39	9 PM	A765	
Nickel		(	).034	0.0010	mg/L	1	4/8/2021 3:05:39	9 PM	A765	

#### Hall Environmental Analysis Laboratory Inc.

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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

В Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range RL Reporting Limit

Page 5 of 20

S % Recovery outside of range due to dilution or matrix

#### Date Reported: 4/20/2021

4/12/2021 2:42:28 PM 59342

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		Receiv	ved Dat	<b>e:</b> 4/7	/2021 8:42:00 AM			
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA MET	HOD 200.7: METALS						Analyst	ELS		
Mangane	ese	2.0	0.020	*	mg/L	10	4/9/2021 9:34:59 AM	59306		
EPA MET	HOD 245.1: MERCURY						Analyst	ags		

0.00020

mg/L

1

ND

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

Qualifiers:

Mercury

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

- B Analyte detected in 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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Date Reported: 4/20/2021

### Hall Environmental Analysis Laboratory, Inc.

**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

Matrix: AQUEOUS

**Received Date:** 4/7/2021 8:42:00 AM

**DE O I DE U** 

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.

\* Value exceeds Maximum Contaminant Level. **Qualifiers:** 

D Sample Diluted Due to Matrix

Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quanitative Limit

в Analyte detected in the associated Method Blank

Е Value above quantitation range

J Analyte detected below quantitation limits Р

Sample pH Not In Range

RL Reporting Limit

Page 7 of 20

% Recovery outside of range due to dilution or matrix S

### Hall Environmental Analysis Laboratory, Inc.

Date Reported: 4/20/2021

CLIENT:	Western Refining Southwest, Inc		Cl	ient Sample I	D: GE	3R-17			
Project:	2021 Giant Former Refinery		(	Collection Dat	<b>e:</b> 4/6	5/2021 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 MET	HOD 200.7: METALS					Analyst:	ELS		
Mangane	ese	0.015	0.0020	mg/L	1	4/12/2021 8:29:56 AM	B76619		
EPA MET	HOD 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.D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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# Pace Analytical® ANALYTICAL REPORT April 14, 2021

### Hall Environmental Analysis Laboratory

Sample Delivery Group:

Samples Received:

L1335990 04/08/2021

Project Number: Description:

Report To:

Jackie Bolte 4901 Hawkins NE Albuquerque, NM 87109

Тс Ss Cn Sr ʹQc Gl AI Sc

Entire Report Reviewed By: John V Hautins

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 National

Mount Juliet, TN 37122 615-758-5858 800-767-5859 12065 Lebanon Rd www.pacenational.com

ACCOUNT: Hall Environmental Analysis Laboratory

SDG: L1335990

DATE/TIME: 04/14/21 06:58 PAGE:

1 of 13

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Ср

Ss

Cn

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Qc

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## SAMPLE SUMMARY

			Collected by	Collected date/time	Received da	te/time
2104244-001E GBR-48 L1335990-01 WW				04/06/21 09:15	04/08/2110:	00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
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 da	te/time
2104244-002E GBR-50 L1335990-02 WW				04/06/21 10:15	04/08/2110:	00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
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 da	te/time
2104244-003E GBR-32 L1335990-03 WW				04/06/21 11:30	04/08/2110:	00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
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 da	te/time
2104244-004E GBR-17 L1335990-04 WW				04/06/2112:30	04/08/2110:	00
Method	Batch	Dilution	Preparation	Analysis	Analyst	Location
			date/time	date/time		
Wet Chemistry by Method 4500S2 D-2011	WG1650244	1	04/13/21 17:45	04/13/21 17:45	CO	Mt. Juliet, TN

<sup>1</sup>Cp <sup>2</sup>Tc <sup>3</sup>Ss <sup>4</sup>Cn <sup>5</sup>Sr <sup>6</sup>Qc <sup>7</sup>Gl <sup>8</sup>Al

### CASE NARRATIVE

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 V Howkins

John Hawkins Project Manager



SDG: L1335990 DATI 04/14/ PAGE: 4 of 13

							Cn
	Resu	lt <u>Qualifier</u>	RDL	Dilution	Analysis	Batch	Ср
Analyte	mg/l		mg/l		date / time		 2
Sulfide	ND		0.0500	1	04/13/2021 19:00	WG1650836	⁻Tc

	·						Cn
	Result	Qualifier	RDL	Dilution	Analysis	Batch	Ср
Analyte	mg/l		mg/l		date / time		2
Sulfide	ND		0.0500	1	04/13/2021 19:00	WG1650836	⁻Tc

							Cr
	Resu	ılt <u>Qualifier</u>	RDL	Dilution	Analysis	Batch	
Analyte	mg/l		mg/l		date / time		 2
Sulfide	ND		0.0500	1	04/13/2021 17:45	WG1650244	Tc

	Result	Qualifier	RDL	Dilution	Analysis	Batch	 Ct
Analyte	mg/l		mg/l		date / time		2
Sulfide	ND		0.0500	1	04/13/2021 17:45	WG1650244	⁻Tc

### WG1650244

Wet Chemistry by Method 4500S2 D-2011

#### QUALITY CONTROL SUMMARY L1335990-03,04

#### Method Blank (MB)

(MB) R3641421-1 04/13/21 17:29						
	MB Result	MB Qualifier	MB MDL	MB RDL		
Analyte	mg/l		mg/l	mg/l		
Sulfide	U		0.0250	0.0500		

Тс

Ss

⁺Cn

Sr

#### L1336060-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1336060-02 04/13/21 17:46 • (DUP) R3641421-3 04/13/21 17:46								
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD - Limits		
Analyte	mg/l	mg/l		%		%		
Sulfide	ND	ND	1	0.000		20		

### L1337071-02 Original Sample (OS) • Duplicate (DUP)

L1337071-02 Original Sample (OS) • Duplicate (DUP)								
(OS) L1337071-02 04/13/21 17:46 • (DUP) R3641421-4 04/13/21 17:46								
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	<sup>8</sup> Al	
Analyte	mg/l	mg/l		%		%		
Sulfide	ND	ND	1	0.000		20	Sc	

#### Laboratory Control Sample (LCS)

_CS) R3641421-2 04/13/21 17:30								
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier			
Analyte	mg/l	mg/l	%	%				
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												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Sulfide	1.00	ND	0.887	0.804	88.7	80.4	1	80.0-120			9.82	20

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
Hall Environmental Analysis Laboratory		L1335990	04/14/21 06:58	9 of 13

### WG1650836

Wet Chemistry by Method 4500S2 D-2011

#### QUALITY CONTROL SUMMARY L1335990-01,02

#### Method Blank (MB)

(MB) R3641423-1 04/13/21 18:56					
	MB Result	MB Qualifier	MB MDL	MB RDL	
Analyte	mg/l		mg/l	mg/l	
Sulfide	U		0.0250	0.0500	

#### L1335990-01 Original Sample (OS) • Duplicate (DUP)

L1335990-01 Original Sample (OS) • Duplicate (DUP)							
(OS) L1335990-01 04/13/21 19:00 • (DUP) R3641423-3 04/13/21 19:00							
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits	<sup>5</sup> Sr
Analyte	mg/l	mg/l		%		%	51
Sulfide	ND	ND	1	0.000		20	6

#### Laboratory Control Sample (LCS)

(LCS) R3641423-2 04/13/21 18:57					
	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	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)

DS) L1335990-02 04/13/21 19:00 • (MS) R3641423-4 04/13/21 19:00 • (MSD) R3641423-5 04/13/21 19:00												
	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	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

DATE/TIME: 04/14/21 06:58 Тс

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### GLOSSARY OF TERMS

#### 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.

SDG: L1335990 Τс

Ss

Cn

Sr

Qc

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AI

## ACCREDITATIONS & LOCATIONS

#### 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 <sup>1</sup>	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
lowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky <sup>16</sup>	KY90010	South Carolina	84004002
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>14</sup>	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas <sup>5</sup>	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 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> 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.

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	HALL ENVIRON ANALYSIS LABORAT	CH S ORY	AIN OF CUS	FODY	RECORD PAG	E:OF:	1 E <b>03</b> 9		Hall Environmental Analysis L 4901 Hav Albuquerque, N TEL: 505- FAX: 505-2 Website: clients.hallenvironme	aboratory wkins NE M 87109 345-3975 345-4107 mtal.com
UB C	ONTRATOR: Pace	TN COMPANY: PA	CE TN		PHONE.	(800) 76	7-5859	FAX:	(615) 758-5859	
DDRE	ESS: 12065	Lebanon Rd			ACCOUNT #:			EMAIL:		
ITY, S	STATE, ZIP: Mt. J	uliet, TN 37122						-		
TEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	A	L	(735990 CAL COMMENTS	
1	2104244-001E	GBR-48	500PLNAOH	Aqueous	4/6/2021 9:15:00 AM	1 Sulfide	>12			-01
2	2104244-002E	GBR-50	500PLNAOH	Aqueous	4/6/2021 10:15:00 AM	1 Sulfide	>12			-07
3	2104244-003E	GBR-32	500PLNAOH	Aqueous	4/6/2021 11:30:00 AM	1 Sulfide	712	-		~~7
4	2104244-004E	GBR-17	500PLNAOH	Aqueous	4/6/2021 12:30:00 AM	1 Sulfide	317	-		ey
COC COC Bott Corr Suff RAD	Seal Present/ Signed/Accura tles arrive in rect bottles u ficient volume Screen <0.5 m	Sample Receipt Checklist Intact: N If Applicabl te: N VOA Zero Headspace tact: N Pres.Correct/Check sed: N sent: N R/hr: N	e :N :N					i sana an i a Si sana Si sana ang		
									۹.	
PECIA	L INSTRUCTIONS /	<u>COMMENTS:</u> 1749	9998	3417	1		and and		5. j. m. n.	

 1744	2948	

10-10-10-10-

Please include the LAB ID ar	id the CLIENT	SAMPLE ID o	n all final reports. Please e-mail resu	ilts to lab@h	allenvironmental.c	com. Please return all coolers and blue ice. Thank you.
Relinquished By:	Date: 4/7/2021	Time: 10:21 AM	Received By:	Date:	Time:	REPORT TRANSMITTAL DESIRED: HARDCOPY (extra cost) FAX EMAIL ONLINE
Relinquished By:	Date:	Time:	Received By Dellan-Car	Date: Date:		Hoof For LAB USE ONLY
TAT: Sta	andard	RUSH	Next BD 2nd BD	3rd Bl	P 🗆	Comments.

WO#:	2104244
	20 4 21

20-Apr-21

Client: Project:		Western Refining S 2021 Giant Former	Southw r Refine	est, Inc. ery							
Sample ID:	MB	Samp	Type: N	IBLK	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	PBW	Bato	ch ID: A	76547	R	RunNo: <b>76</b>	6547				
Prep Date:		Analysis	Date:	4/8/2021	S	SeqNo: 27	711919	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		ND	0.003	)							
Iron		ND	0.05	)							
Manganese		ND	0.002	)							
Sample ID:	LLLCS	Samp	Type: L	CSLL	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	BatchQ	C Bate	ch ID: 🗚	76547	R	RunNo: <b>76</b>	6547				
Prep Date:		Analysis	Date:	4/8/2021	S	SeqNo: 27	711921	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		ND	0.003	0.002000	0	56.3	50	150			
Iron		ND	0.05	0.02000	0	121	50	150			
Manganese		0.0020	0.002	0.002000	0	102	50	150			
Sample ID:	LCS	Samp	Type: L	cs	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	LCSW	Bate	ch ID: A	76547	R	RunNo: <b>76</b>	6547				
Prep Date:		Analysis	Date:	4/8/2021	S	SeqNo: 27	711945	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		0.52	0.003	0.5000	0	104	85	115			
Iron		0.51	0.05	0.5000	0	102	85	115			
Manganese		0.51	0.002	0.5000	0	102	85	115			
Sample ID:	MB-593	06 Samp	Type: N	IBLK	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	PBW	Bate	ch ID: 5	9306	R	RunNo: <b>76</b>	6575				
Prep Date:	4/8/202	21 Analysis	Date:	4/9/2021	S	SeqNo: 27	713081	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		ND	0.003	)							
Iron		ND	0.05	0							
Manganese		ND	0.002	)							
Sample ID:	LLLCS-	59306 Samp	Type: L	CSLL	Tes	tCode: EF	PA Method	200.7: Metals			
Client ID:	BatchQ	C Bate	ch ID: 5	9306	R	RunNo: <b>76</b>	6575				
Prep Date:	4/8/202	21 Analysis	Date:	4/9/2021	S	SeqNo: 27	713082	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		ND	0.003	0.002000	0	115	50	150			
Iron		ND	0.05	0.02000	0	124	50	150			
Manganese		0.0023	0.002	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

Client:	Western I	Refining S	Southwe	st, Inc.							
Project:	2021 Gia	nt Former	r Refiner	У							
Sample ID:	LCS-59306	Samp	Type: LC	S	TestCode: EPA Method 200.7: Metals						
Client ID:	LCSW	Bate	ch ID: 59	306	RunNo: <b>76575</b>						
Prep Date:	4/8/2021	Analysis	Date: 4/	9/2021	S	SeqNo: 2	713083	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:	D: 2104244-004CMS SampType: MS TestCode: EPA Method 200.7: Metals										
Client ID:	GBR-17	Bate	ch ID: <b>B7</b>	6619	F	RunNo: <b>7</b>	6619				
Prep Date:		Analysis	Date: 4/	12/2021	S	SeqNo: 2	714660	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:	2104244-004CMS	<b>)</b> Samp	Type: MS	SD	Tes	tCode: E	PA Method	200.7: Metals			
Client ID:	GBR-17	Bate	ch ID: <b>B7</b>	6619	F	RunNo: <b>7</b>	6619				
Prep Date:		Analysis	Date: 4/	12/2021	5	SeqNo: 2	714664	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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Analysis Date:

Result

Analysis Date:

Result

0.024

WO#:	2104244
	20-Apr-21

ormer	ng Southwest, Inc. mer Refinery									
Samp	Гуре: МВ	BLK	Test	Code: EF	PA Method	200.7: Dissol	ved Metal	s		
Batc	h ID: <b>A7</b>	6547	R	unNo: 70	6547					
alysis E	Date: 4/8	8/2021	S	eqNo: 27	711920	Units: mg/L				
esult	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
ND	0.0020									
ND	0.020									
ND	0.0020									
SampType: LCSLL TestCode: EPA Method 200.7: Dissolved Metals										
Batc	h ID: A7	6547	R	unNo: 7	6547					
Batc alysis [	h ID: <b>A7</b> Date: <b>4/</b>	6547 8/2021	R	unNo: 70 SeqNo: 2	6547 711922	Units: <b>mg/L</b>				
Batc alysis [ esult	h ID: <b>A7</b> ( Date: <b>4/t</b> PQL	6547 8/2021 SPK value	R S SPK Ref Val	unNo: <b>7</b> 0 eqNo: <b>2</b> 7 %REC	6547 711922 LowLimit	Units: <b>mg/L</b> HighLimit	%RPD	RPDLimit	Qual	
Batc alysis [ esult ND	h ID: <b>A7</b> Date: <b>4/3</b> PQL 0.0020	6547 8/2021 SPK value 0.002000	R S SPK Ref Val 0	unNo: 70 eqNo: 27 %REC 56.3	6547 711922 LowLimit 50	Units: <b>mg/L</b> HighLimit 150	%RPD	RPDLimit	Qual	
Batc alysis [ esult ND ).024	h ID: A7 Date: 4/8 PQL 0.0020 0.020	6547 8/2021 SPK value 0.002000 0.02000	R S SPK Ref Val 0 0	eqNo: 76 %REC 56.3 121	6547 711922 LowLimit 50 50	Units: <b>mg/L</b> HighLimit 150 150	%RPD	RPDLimit	Qual	
Batc alysis [ esult ND 0.024 0020	h ID: A70 Date: 4/0 PQL 0.0020 0.020 0.0020	6547 8/2021 SPK value 0.002000 0.02000 0.002000	R S SPK Ref Val 0 0 0	tunNo: 76 eqNo: 27 <u>%REC</u> 56.3 121 102	6547 711922 LowLimit 50 50 50	Units: <b>mg/L</b> HighLimit 150 150 150	%RPD	RPDLimit	Qual	
Batc alysis [ esult ND 0.024 0020 Samp]	h ID: A70 Date: 4/0 PQL 0.0020 0.020 0.0020 Type: LC	6547 8/2021 SPK value 0.002000 0.02000 0.002000 S	R SPK Ref Val 0 0 0 Test	CunNo: 70 SeqNo: 23 %REC 56.3 121 102 Code: EF	6547 711922 LowLimit 50 50 20 PA Method	Units: mg/L HighLimit 150 150 150 200.7: Dissolv	%RPD	RPDLimit s	Qual	
Batc alysis I esult ND 0.024 0020 Samp Batc	h ID: <b>A7</b> Date: <b>4/</b> <u>PQL</u> 0.0020 0.020 0.0020 Type: <b>LC</b> h ID: <b>A7</b>	6547 B/2021 SPK value 0.002000 0.02000 0.002000 S 6547	R SPK Ref Val 0 0 0 Test R	tunNo: 7 eqNo: 2 %REC 56.3 121 102 Code: EF tunNo: 7	6547 711922 LowLimit 50 50 50 PA Method 6547	Units: mg/L HighLimit 150 150 150 200.7: Dissolv	%RPD	RPDLimit	Qual	
Batc alysis [ <u>esult</u> ND 0.024 0020 Sampī Batc alysis [	h ID: A7 Date: 4/4 0.0020 0.020 0.0020 Fype: LC h ID: A7 Date: 4/4	6547 8/2021 SPK value 0.002000 0.02000 0.002000 S 6547 8/2021	R SPK Ref Val 0 0 0 Test R S	kunNo: 7 eqNo: 2 %REC 56.3 121 102 Code: EF kunNo: 7 eqNo: 2	6547 711922 LowLimit 50 50 20 PA Method 6547 711946	Units: mg/L HighLimit 150 150 150 200.7: Dissolv Units: mg/L	%RPD	RPDLimit	Qual	

#### Western Refining South **Project:** 2021 Giant Former Refi

**Client:** 

Sample ID: MB

Prep Date:

Analyte

Manganese

Prep Date:

Analyte

Barium

Iron

Ν

Barium Iron

Client ID: PBW

Sample ID: LLLCS

Client ID: BatchQC

langanese		0.0020	0.0020	0.002000	0	102	50	150			
Sample ID:	LCS	Samp	Type: LC	s	Tes	tCode: EF	PA Method	200.7: Dissolv	ed Metal	s	
Client ID:	LCSW	Bato	h ID: A7	6547	R	RunNo: 7	6547				
Prep Date:		Analysis	Date: 4/8	8/2021	S	SeqNo: 2	711946	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			
ron		0.51	0.020	0.5000	0	102	85	115			
langanese		0.51	0.0020	0.5000	0	102	85	115			
Sample ID:	МВ	Samp	Туре: <b>МВ</b>	LK	Tes	tCode: EF	PA Method	200.7: Dissolv	ed Metal	s	
Client ID:	PBW	Bato	ch ID: <b>B7</b>	6619	R	RunNo: 7	6619				
Prep Date:		Analysis	Date: 4/	12/2021	S	SeqNo: 2	716980	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium		ND	0.0020								
ron		ND	0.020								
langanese		ND	0.0020								
Silver		ND	0.0050								
Sample ID:	LLLCS	Samp	Type: LC	SLL	Tes	tCode: EF	PA Method	200.7: Dissolv	ed Metal	s	
Client ID:	BatchQC	Bato	ch ID: <b>B7</b>	6619	R	RunNo: 7	6619				
Prep Date:		Analysis	Date: 4/	12/2021	S	SeqNo: 27	716981	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			
ron		0.030	0.020	0.02000	0	150	50	150			S
langanese		ND	0.0020	0.002000	0	98.4	50	150			

#### **Qualifiers:**

1

- Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

Analyte detected in the associated Method Blank в

Е Value above quantitation range

J Analyte detected below quantitation limits

Р Sample pH Not In Range

RL Reporting Limit

Client: Project:	Wester 2021 C	m Refining S Biant Former	Southwes Refiner	st, Inc. Y							
Sample ID:	LLLCS	Samp	Туре: <b>LC</b>	SLL	TestCode: EPA Method 200.7: Dissolved Metals						
Client ID:	BatchQC	Batch ID: B76619			F	RunNo: 7	6619				
Prep Date:		Analysis I	Date: 4/	12/2021	S	SeqNo: 27	716981	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											
Sample ID:	LCS	Samp	Туре: <b>LC</b>	S	Tes	tCode: EF	PA Method	200.7: Dissol	ved Meta	S	
Sample ID: Client ID:	LCS LCSW	Samp <sup>-</sup> Bato	Type: LC ch ID: B7	S 6619	Tes R	tCode: EF	PA Method 6619	200.7: Dissol <sup>y</sup>	ved Metal	S	
Sample ID: Client ID: Prep Date:	LCS	Samp Batc Analysis I	Type: <b>LC</b> :h ID: <b>B7</b> Date: <b>4</b> /	S 6619 12/2021	Tes F S	tCode: EF RunNo: 70 SeqNo: 27	PA Method 6619 716982	200.7: Dissol	ved Meta	s	
Sample ID: Client ID: Prep Date: Analyte	LCS LCSW	Samp Bato Analysis I Result	Type: <b>LC</b> ch ID: <b>B7</b> Date: <b>4</b> / PQL	<b>S</b> 6619 12/2021 SPK value	Tes F S SPK Ref Val	tCode: EF RunNo: 7 SeqNo: 2 %REC	PA Method 6619 716982 LowLimit	200.7: Dissol Units: mg/L HighLimit	ved Meta	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Barium	LCS LCSW	Samp Bato Analysis I Result 0.52	Type: <b>LC</b> ch ID: <b>B7</b> Date: <b>4</b> / PQL 0.0020	<b>S</b> 6619 12/2021 SPK value 0.5000	Tes F S SPK Ref Val 0	tCode: <b>EF</b> RunNo: <b>7</b> GeqNo: <b>2</b> <u>%REC</u> 104	PA Method 6619 716982 LowLimit 85	200.7: Dissol Units: mg/L HighLimit 115	ved Metal	RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Barium Iron	LCS LCSW	Samp Bate Analysis I Result 0.52 0.51	Type: <b>LC</b> ch ID: <b>B7</b> Date: <b>4/</b> <u>PQL</u> 0.0020 0.020	<b>S</b> 6619 12/2021 SPK value 0.5000 0.5000	Tes F SPK Ref Val 0 0	tCode: EF RunNo: 70 SeqNo: 27 %REC 104 102	PA Method 6619 716982 LowLimit 85 85	200.7: Dissol Units: mg/L HighLimit 115 115	ved Metal %RPD	<b>s</b> RPDLimit	Qual
Sample ID: Client ID: Prep Date: Analyte Barium Iron Manganese	: LCS LCSW	Samp Bato Analysis I Result 0.52 0.51 0.50	Type: LC ch ID: B7 Date: 4/ PQL 0.0020 0.020 0.0020	S 6619 12/2021 SPK value 0.5000 0.5000 0.5000	Tes F SPK Ref Val 0 0 0 0	tCode: EF RunNo: 70 SeqNo: 27 %REC 104 102 99.2	PA Method 6619 716982 LowLimit 85 85 85	200.7: Dissol Units: mg/L HighLimit 115 115 115	ved Metal	s RPDLimit	Qual

**Qualifiers:** 

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

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

Page 12 of 20

WO#:	2	210	424	4

Client:	Western	Refining	Southw	est, Inc.							
Project:	2021 Gia	nt Forme	er Refine	ery							
Sample ID:	MB-59306	Sam	oType: N	BLK	Tes	stCode:	EPA 200.8: I	Vetals			
Client ID:	PBW	Bat	ich ID: 5	9306	I	RunNo:	76609				
Prep Date:	4/8/2021	Analysis	Date:	/12/2021	:	SeqNo:	2714337	Units: mg/L			
Analyta		Popult	DOI	SDK voluo				Liahl imit	0/ DDD		Qual
Analyte		Nesuit			SFR Rei Vai			TiigiiLiitiit	/0RFD	KF DLIIIII	Quai
Bondlium			0.0010	)							
			0.0010	)							
Caumium			0.00050	)							
Chromium		ND	0.0010	)							
Lead		ND	0.00050	)							
Nickel		ND	0.0010	)							
Selenium		ND	0.0010	)							
Silver		ND	0.00050	)							
Thallium		ND	0.0002	5							
Sample ID:	ample ID: MSLLLCS-59306 SampType: LCSLL			Tes	stCode:	EPA 200.8: I	Vetals				
Client ID:	BatchQC	Bat	ich ID: 5	9306	I	RunNo:	76609				
Prep Date:	4/8/2021	Analysis	Date:	/12/2021	:	SeqNo:	2714338	Units: <b>mg/L</b>			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.0010	0.0010	0.001000	0	102	2 50	150			
Beryllium		ND	0.0010	0.001000	0	88.7	7 50	150			
Cadmium		ND	0.00050	0.0005000	0	86.8	8 50	150			
Chromium		0.0010	0.0010	0.001000	0	10	5 50	150			
Lead		ND	0.00050	0.0005000	0	98.8	8 50	150			
Nickel		ND	0.0010	0.001000	0	99.1	1 50	150			
Selenium		0.0010	0.0010	0.001000	0	104	4 50	150			
Silver		0.00051	0.00050	0.0005000	0	10	1 50	150			
Sample ID:	MSLLLCS-TL-593	<b>06</b> Sam	pType: L	CSLL	Tes	stCode:	EPA 200.8: I	Metals			
Client ID:	BatchQC	Bat	ich ID: 5	9306	I	RunNo:	76609				
Prep Date:	4/8/2021	Analysis	Date:	/12/2021	:	SeqNo:	2714340	Units: <b>mg/L</b>			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Thallium		0.00025	0.0002	5 0.0002500	0	102	2 50	150			
Sample ID:	MSLCS-59306	Sam	pType: L	cs	Tes	stCode:	EPA 200.8: I	Vetals			
Client ID:	LCSW	Bat	ich ID: 5	9306	I	RunNo:	76609				
Prep Date:	4/8/2021	Analysis	Date:	/12/2021	:	SeqNo:	2714357	Units: mg/L			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	C LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		0.024	0.0010	0.02500	0	95.6	6 85	115			
Beryllium		0.026	0.0010	0.02500	0	103	3 85	115			
Cadmium		0.011	0.00050	0.01250	0	91.4	4 85	115			
Chromium		0.025	0.0010	0.02500	0	99.8	8 85	115			

#### Qualifiers:

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit

WO#: 2104244 20-Apr-21

Client: Project:	Western 2021 Gia	Refining nt Forme	Southv r Refin	vest, Inc. ery							
Sample ID:	MSLCS-59306	Samp	oType: I	LCS	Tes	tCode: E	PA 200.8: N	letals			
Client ID:	LCSW	Bat	ch ID:	59306	F	RunNo: 7	6609				
Prep Date:	4/8/2021	Analysis	Date:	4/12/2021	5	SeqNo: 2	714357	Units: mg/L			
Analyte		Result	PQI	_ SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead		0.012	0.0005	0.01250	0	99.5	85	115			
Nickel		0.025	0.001	0 0.02500	0	98.1	85	115			
Selenium		0.024	0.001	0 0.02500	0	95.4	85	115			
Silver		0.012	0.0005	0.01250	0	98.3	85	115			
Thallium		0.012	0.0002	0.01250	0	99.7	85	115			
Sample ID:	MB-59406	SampType: MBLK			Tes	tCode: E	PA 200.8: N	letals			
Client ID:	PBW	Bat	ch ID: 🚦	59406	F	RunNo: <b>7</b>	6689				
Prep Date:	4/14/2021	Analysis	Date:	4/15/2021	S	SeqNo: 2	717606	Units: mg/L			
Analyte		Result	PQI	_ SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.001	0							
Beryllium		ND	0.001	0							
Cadmium		ND	0.0005	50							
Chromium		ND	0.001	0							
Lead		ND	0.0005	50							
Nickel		ND	0.001	0							
Selenium		ND	0.001	0							
Silver		ND	0.0005	50							
Thallium		ND	0.0002	25							
Sample ID:	MSLLLCS-59406	Samp	oType: I	LCSLL	Tes	tCode: E	PA 200.8: N	letals			
Client ID:	BatchQC	Bat	ch ID: 🚦	59406	F	RunNo: <b>7</b>	6689				
Prep Date:	4/14/2021	Analysis	Date:	4/15/2021	5	SeqNo: 2	717607	Units: mg/L			
Analyte		Result	PQI	_ SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	0.001	0 0.001000	0	93.4	50	150			
Beryllium		ND	0.001	0 0.001000	0	87.8	50	150			
Cadmium		0.00051	0.0005	0.0005000	0	101	50	150			
Chromium		0.0011	0.001	0 0.001000	0	114	50	150			
Lead		0.00050	0.0005	0.0005000	0	101	50	150			
Nickel		ND	0.001	0 0.001000	0	97.6	50	150			
Selenium		ND	0.001	0 0.001000	0	80.7	50	150			
Silver		ND	0.0005	0.0005000	0	98.4	50	150			
Sample ID:	MSLCS-59406	Samp	oType: I	LCS	Tes	tCode: E	PA 200.8: N	letals			
Client ID:	LCSW	Bat	ch ID:	59406	F	RunNo: <b>7</b>	6689				
Prep Date:	4/14/2021	Analysis	Date:	4/15/2021	5	SeqNo: 2	717608	Units: mg/L			
Analyte		Result	PQI	_ SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

#### **Qualifiers:**

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

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

WO#: 2104244 20-Apr-21

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

Sample ID: N	ISLCS-59406	Samp	oType: LC	S	Tes	tCode: El	PA 200.8: N	letals			
Client ID: L	CSW	Bat	ch ID: 594	406	F	RunNo: 7	6689				
Prep Date:	4/14/2021	Analysis	Date: 4/	15/2021	S	SeqNo: 2	717608	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: N	ISLLLCS-TL-594	106 Samp	oType: LC	SLL	Tes	tCode: El	PA 200.8: N	letals			
Client ID: B	atchQC	Bat	ch ID: 594	406	F	RunNo: 7	6689				
Prep Date:	4/14/2021	Analysis	Date: 4/	15/2021	5	SeqNo: 2	717609	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#:	2104244
	20 4

20-Apr-21

Client:		Western Refining	Southwe	est, Inc.							
Project:		2021 Giant Forme	r Refine	ery							
Sample ID:	МВ	Samr	Type: M	BLK	Tes	tCode: E	PA 200.8: [	Dissolved Met	als		
	DRW	Bat	Botob ID: A76552			Duplice 76552					
Dress Date	1 0 11	Dat A s a h s a		10000	۱ ر			11.1.1. 0			
Prep Date:		Analysis	Date: 4	/8/2021	3	Seqino: 2	/12149	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	1							
Cadmium		ND	0.00050	)							
Chromium		ND	0.0010	)							
Lead		ND	0.00050	)							
Nickel		ND	0.0010	)							
Selenium		ND	0.0010	1							
Thallium		ND	0.00050								
Sample ID:	LCSLL	Samp	oType: L	CSLL	Tes	tCode: E	PA 200.8: [	Dissolved Me	tals		
Client ID:	BatchQ	<b>C</b> Bat	ch ID: A	76553	F	RunNo: 7	6553				
Prep Date:		Analysis	Date: 4	/8/2021	S	SeqNo: 2	712150	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	Samp	oType: L	cs	Tes	tCode: E	PA 200.8: [	Dissolved Me	tals		
Client ID:	LCSW	Bat	ch ID: A	76553	RunNo: <b>76553</b>						
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
- Н Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- PQL Practical Quanitative Limit
- % Recovery outside of range due to dilution or matrix S

- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits

Р Sample pH Not In Range

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RL Reporting Limit

WO#:	2104244				
	20-Apr-21				

Client:	Western Refining Southwest, Inc.						
Project:	2021 Gia	ant Former Refinery					
Sample ID:	MB-59342	SampType: MBLK	TestCode: EPA Method				
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:	mple ID: LLLCS-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:	e 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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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WO#: **2104244** 

20-Apr-2	1

Client: Project:	Western Refining Sout 2021 Giant Former Ref	hwest, Inc. finery						
Sample ID: MB	SampType	e: mblk	TestCode: EPA Method 300.0: Anions					
Client ID: PBW	Batch ID	: R76513	R					
Prep Date:	Analysis Date: 4/7/2021		S	SeqNo: 2711531	Units: mg/L			
Analyte	Result P	QL 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	: Ics	TestCode: EPA Method 300.0: Anions					
Client ID: LCSW	Batch ID	: R76513	R	RunNo: <b>76513</b>				
Prep Date:	Analysis Date	Analysis Date: 4/7/2021		SeqNo: 2711532	Units: mg/L			
Analyte	Result P	QL 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	SampType: mblk		TestCode: EPA Method 300.0: Anions				
Client ID: PBW	Batch ID	Batch ID: R76591		RunNo: <b>76591</b>				
Prep Date:	Analysis Date: 4/9/2021		S	GeqNo: 2713709	Units: mg/L			
Analyte	Result P	QL SPK value	SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND (	0.50						
Sample ID: LCS	SampType	e: Ics	Tes	tCode: EPA Method	i			
Client ID: LCSW	Batch ID	: R76591	R					
Prep Date:	Analysis Date	4/9/2021	S	SeqNo: 2713710	Units: mg/L			
Analyte	Result P	QL 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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit
| Client:<br>Project:   | Western Refining South<br>2021 Giant Former Ref | iwest, Inc.<br>inery |             |                     |             |      |          |      |
|-----------------------|---|----------------------|-------------|---------------------|-------------|------|----------|------|
| Sample ID: MB-D       | C SampType                                      | MBLK                 | Test        | tCode: SM 5310B: D  | 000         |      |          |      |
| Client ID: PBW        | Batch ID:                                       | A76640               | R           | tunNo: <b>76640</b> |             |      |          |      |
| Prep Date:            | Analysis Date:                                  | 4/12/2021            | S           | eqNo: 2715741       | Units: mg/L |      |          |      |
| Analyte               | Result P  | QL SPK value         | SPK Ref Val | %REC LowLimit       | HighLimit   | %RPD | RPDLimit | Qual |
| Organic Carbon, Disso | ved ND  | 1.0                  |             |                     |             |      |          |      |
| Sample ID: LCS-I      | OC SampType                                     | LCS                  | Test        | tCode: SM 5310B: D  | 000         |      |          |      |
| Client ID: LCSW       | Batch ID:                                       | A76640               | R           | tunNo: <b>76640</b> |             |      |          |      |
| Prep Date:            | Analysis Date:                                  | 4/12/2021            | S           | SeqNo: 2715742      | Units: mg/L |      |          |      |
| Analyte               | Result P  | QL SPK value         | SPK Ref Val | %REC LowLimit       | HighLimit   | %RPD | RPDLimit | Qual |
| Organic Carbon, Disso | ved 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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

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

Client:	Western R	efining Sc	outhwe	st, Inc.							
Project:	2021 Gian	t Former I	Refiner	У							
Sample ID:	MB-59292	SampTy	/pe: <b>M</b>	BLK	Tes	tCode: SI	M2540C MC	D: Total Diss	olved So	lids	
Client ID:	PBW	Batch	ID: 59	292	R	unNo: 7	6579				
Prep Date:	4/8/2021	Analysis Da	ate: 4/	9/2021	S	eqNo: 2	713211	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: I	LCS-59292	SampTy	/pe: <b>LC</b>	S	Tes	tCode: SI	M2540C MC	D: Total Diss	olved So	lids	
Client ID:	LCSW	Batch	ID: 59	292	R	tunNo: 7	6579				
Prep Date:	4/8/2021	Analysis Da	ate: 4/	9/2021	S	eqNo: 2	713212	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	SampTy	/pe: <b>DL</b>	IP	Tes	tCode: SI	M2540C MC	D: Total Diss	olved So	lids	
Client ID:	GBR-50	Batch	ID: 59	292	R	lunNo: 7	6579				
Prep Date:	4/8/2021	Analysis Da	ate: 4/	9/2021	S	eqNo: 2	713232	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 Quanitative Limit
- S % Recovery outside of range due to dilution or matrix

- B Analyte detected in 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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	CONMENTAL YSIS RATORY	Hall Environmenta Al TEL: 505-345-397 Website: clients.I	al Analysis Labor 4901 Hawki buquerque, NM o 5 FAX: 505-345 hallenvironmenta	ratory ins NE 87109 <b>San</b> -4107 il.com	nple Log-In Check Lis	st
Client Name:	Western Refining Southwest, Inc.	Work Order Numbe	r: 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:	JR417/21					
Chain of Cus	tody					
1. Is Chain of Cu	ustody complete?		Yes 🗹	No 🗌	Not Present	
2. How was the s	sample delivered?		<u>Courier</u>			
<u>Log In</u> 3. Was an attem	pt made to cool the sampl	es?	Yes 🔽	No 🗌	NA 🗌	
4. Were all samp	les received at a temperat	ture of >0° C to 6.0°C	Yes 🔽	No 🗌		
5. Sample(s) in p	proper container(s)?		Yes 🔽	No 🗌		
6. Sufficient samp	ole volume for indicated te	st(s)?	Yes 🗹	No 🗌		
7. Are samples (e	except VOA and ONG) pro	perly preserved?	Yes 🔽	No 🗌		
8. Was preservati	ive added to bottles?		Yes	No 🔽	NA 🗌	
9. Received at lea	ast 1 vial with headspace <	<1/4" for AQ VOA?	Yes	No 🗌	NA 🔽	
10. Were any sam	ple containers received br	oken?	Yes	No 🗹	# of preserved	
11. Does paperwor (Note discrepar	k match bottle labels? ncies on chain of custody)		Yes 🗹	No 🗌	for pH:	ted)
12. Are matrices co	prrectly identified on Chain	of Custody?	Yes 🗹	No 🗌	Adjusted? W	_
13. Is it clear what	analyses were requested?		Yes 🗹	No 🗌		,
14. Were all holding (If no, notify cus	g times able to be met? stomer for authorization.)		Yes 🔽	No 🗌	Checked by: Cm 4/7	19
Special Handlii	ng (if applicable)					
15. Was client noti	fied of all discrepancies w	ith this order?	Yes 🗌	No 🗌	NA 🗹	
Person N	lotified:	Date:		da tartak darak dalam da ang sanak ar		
By Whon	n:	Via:	] eMail 🔲 P	hone 🗍 Fax	In Person	
Regardin	ig:					
Client Ins	structions:				an an an than an a	
16. Additional rem	arks:					
17. <u>Cooler Inform</u> Cooler No 1	Temp °CCondition4.2Good	Seal Intact Seal No S	Seal Date	Signed By		

# Andy Freeman

From: Sent: To: Cc: Subject: Attachments: Hyde, Stuart <Stuart.Hyde@wsp.com> Tuesday, April 6, 2021 11:57 AM Andy Freeman Michelle Garcia; Hencmann, Devin GBR Samples 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	Ba, Fe, Mn (200.7)
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, SQU, ND)	(ND-2)
9034/376.2	Sulfide	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
2540C	TDS	
9060/415.1	DOC	

Stuart Hyde, L.G.

Environmental Geologist *Please note the new email address* 

1121)

T+ 1 970-385-1096 M+ 1 970-903-1607 Email : stuart.hyde@wsp.com

WSP USA 848 East 2<sup>nd</sup> 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
<b>Coefficient of Variation</b>	0.678	Skewness	0.47
Mean of logged Data	5.092	SD of logged Data	0.839

d2max (for USL)

2.941

# Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL) 2.069

## Normal GOF Test

Shapiro Wilk Test Statistic	0.909	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.135	Lilliefors GOF Test
5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level
Data Na		

Data Not Normal at 5% Significance Level

## **Background Statistics Assuming Normal Distribution**

% 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
	% Coverage 95% UPL (t) 95% USL	% Coverage 524.6 95% UPL (t) 469.3 95% USL 653.7	% Coverage         524.6         90% Percentile (z)           95% UPL (t)         469.3         95% Percentile (z)           95% USL         653.7         99% Percentile (z)

# Gamma GOF Test

A-D Test Statistic	1.33	Anderson-Darling Gamma GOF Test		
5% A-D Critical Value	0.764	Data Not Gamma Distributed at 5% Significance Level		
K-S Test Statistic	0.145	Kolmogorov-Smirnov Gamma GOF Test		
5% K-S Critical Value	0.13	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

Shapiro	Wilk	Lognormal	GOF	Test
---------	------	-----------	-----	------

Data Not Lognormal at 5% Significance Level

**Lilliefors Lognormal GOF Test** Data Not Lognormal at 5% Significance Level

5% Shapiro Wilk Critical Value 0.947 Lilliefors Test Statistic 0.142

Shapiro Wilk Test Statistic

5% Lilliefors Critical Value 0.127

Data Not Lognormal at 5% Significance Level

0.881

#### **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

530	95% UTL with 95% Coverage	47	Order of Statistic, r
0.699	Approximate Actual Confidence Coefficient achieved by UTL	1.237	Approx, f used to compute achieved CC
93	Approximate Sample Size needed to achieve specified CC		
530	95% BCA Bootstrap UTL with 95% Coverage	549.5	95% Percentile Bootstrap UTL with 95% Coverage
406	90% Percentile	516.5	95% UPL
472	95% Percentile	667	90% Chebyshev UPL
545.9	99% Percentile	870.3	95% Chebyshev UPL
		560	95% USL

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)**

	<b>General Statistics</b>		
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)

d2max (for USL) 2.868

2.117

#### 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% UTL95% 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
DI /2 Substitution Bac	karound Sta	tistics Assuming Normal Distribution		
Moon	0 277	listics Assuming Normal Distribution	۲D	0 251
	1 010	05% [][	3D )  (+)	0.331
90% Porcontilo (2)	0.726	95% Or 95% Porconti	(t)	0.875
90% Percentile (2)	1.002	95% Percenti		1 202
DI /2 is not a recommended met	hod DI /2 n	rovided for comparisons and historical reasons	USL	1.205
	1100. DL/ 2 p			
Gamma GOI	F Tests on De	etected 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% Sign	ificanc	e Level
K-S Test Statistic	0.0836	Kolmogorov-Smirnov GOF		
5% K-S Critical Value	0.147	Detected data appear Gamma Distributed at 5% Sign	ificanc	e Level
Detected data appea	ar Gamma D	istributed at 5% Significance Level		
Gamma	a Statistics o	n Detected Data Only		
k hat (MLE)	0.729	k star (bias corrected I	VILE)	0.69
Theta hat (MLE)	0.389	Theta star (bias corrected I	VILE)	0.411
nu hat (MLE)	56.88	nu star (bias correc	ted)	53.83
MLE Mean (bias corrected)	0.284			
MLE Sd (bias corrected)	0.341	95% Percentile of Chisquare (2k	star)	4.722
Commo BO	S Statistics u	sing Imputed Non Detects		
GROS may not be used when data s	rat bac > E00	(NDs with many tied observations at multiple DLs		
GROS may not be used when kstar of detects is	s small such	$\sim$ NDS with many tied observations at multiple DLS	-20)	
Eor such situations GROS	method may	vield incorrect values of LICLs and RTVs	-20)	
	ially true wh	en the sample size is small		
For gamma distributed detected data BTVs	and LICI's ma	av be computed using gamma distribution on KM estimat	<b>A</b> C	
Minimum	0 0069	A	Jean	0 277
Maximum	1 4	Me	dian	0.13
SD	0.351		CV	1.267
k hat (MLE)	0.7	k star (bias corrected I	MLE)	0.665
Theta hat (MLE)	0.395	Theta star (bias corrected I	, MLE)	0.417
nu hat (MLE)	56.03	nu star (bias correc	ted)	53.16
MLE Mean (bias corrected)	0.277	MLE Sd (bias correc	ted)	0.34
95% Percentile of Chisquare (2kstar)	4.61	90% Perce	ntile	0.703
95% Percentile	0.96	99% Percei	ntile	1.575
The following statistics are c	omputed us	ing Gamma ROS Statistics on Imputed Data		
Upper Limits using Wilso	n Hilferty (V	VH) 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	5	1.005
95% Gamma USL 2.096	2.508			
Estimates of (	Gamma Para	meters 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 a	omputed w	ing gamma distribution and KM actimator		
The following statistics are of the following statistics are o	n Hilforty (M	Mig gamma usunbution and NW estimates		
		אוון מווע וומשיגוווס עיואוכץ (דועע) ועופנווטעט אונו		н\м/
95% Approx. Gamma UTL with 95% Coverage 1.27	1.404	95% Approx. Gamma UPL 0.93	37	0.992

95% KM Gamma Percentile 0.893	0.939	95% Gamma USL 2.063	2.47
Lognormal	GOF Test on	Detected Observations Only	
Shapiro Wilk Test Statisti	c 0.962	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Valu	e 0.939	Detected Data appear Lognormal at 5% Significance Le	vel
Lilliefors Test Statisti	c 0.0839	Lilliefors GOF Test	
5% Lilliefors Critical Valu	e 0.14	Detected Data appear Lognormal at 5% Significance Le	vel
Detected Dat	a appear Logr	normal at 5% Significance Level	
Background Lognormal BOS Statist	tics Assuming	Lognormal Distribution Using Imputed Non-Detects	
Mean in Original Scal	ο 0.277	Mean in Log Scale	-2 177
SD in Original Scal	e 0.351	SD in Log Scale	1 5 3 9
95% UTI 95% Coverage	e 2.95	95% BCA LITI 95% Coverage	1.555
95% Bootstrap (%) UTL95% Coverage	e 1.4	95% UPL (t)	1.566
90% Percentile (z	2) 0.815	95% Percentile (z)	1.426
99% Percentile (z	2) 4.07	95% USL	9.36
Statistics using KM estimat	tes on Logged	Data and Assuming Lognormal Distribution	2.666
KM Mean of Logged Dat	a -2.16	95% KM UTL (Lognormal)95% Coverage	2.666
KIVI SD OF LOgged Dat	a 1.483	95% KM USL (Lognormal)	1.448
95% KM Percentile Lognormal (2	2) 1.323	95% KM OSE (Lognormal)	8.113
Background DL	/2 Statistics A	ssuming Lognormal Distribution	
Mean in Original Scal	e 0.277	Mean in Log Scale	-2.177
SD in Original Scal	e 0.351	SD in Log Scale	1.541
95% UTL95% Coverag	e 2.958	95% UPL (t)	1.57
90% Percentile (z	2) 0.816	95% Percentile (z)	1.429
99% Percentile (z	2) 4.083	95% USL	9.399
DL/2 is not a Recommended M	lethod. DL/2 p	provided for comparisons and historical reasons.	
Nonparame	tric Distributi	on Free Background Statistics	
Data appear to follow	w a Discernibl	e Distribution at 5% Significance Level	
Nonparametric Upper Limits fo	or BTVs(no dis	tinction made between detects and nondetects)	
Order of Statistic,	r 40	95% UTL with95% Coverage	1.4
Approx, f used to compute achieved C	C 2.105	Approximate Actual Confidence Coefficient achieved by UTL	0.871
Approximate Sample Size needed to achieve specified C	C 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 Normal GOF Test on Detects Only Shapiro Wilk Test Statistic 0.593 **Shapiro Wilk GOF Test** Data Not Normal at 5% Significance Level 5% Shapiro Wilk Critical Value 0.939 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

Estimates of (	Gamma Para	ameters 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 o	computed u	sing gamma distribution and KM estimates	
Upper Limits using Wilso	n Hilferty (V	VH) 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 G	OF Test on [	Detected Observations Only	
Shaniro Wilk Test Statistic	0.98	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.939	Detected Data appear Lognormal at 5% Significance Le	vel
Lilliefors Test Statistic	0.0623	Lilliefors GOE Test	
5% Lilliefors Critical Value	0.0020	Detected Data appear Lognormal at 5% Significance Le	vel
Detected Data a	appear Logn	ormal at 5% Significance Level	
Background Lognormal ROS Statistic	s 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	s 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 DI /2	Statistics A	scuming Lognormal Distribution	
Mean in Original Scale	17 25	Mean in Log Scale	1 / 75
SD in Original Scale	21 72	SD in Log Scale	1 0 2 2
	2526		115 8
90% Percentile (7)	51 36	95% Percentile (7)	103.3
90% Percentile (2)	282.8	95% Percentile (2)	1105.5
DL/2 is not a Recommended Met	hod. DL/2 p	rovided for comparisons and historical reasons.	1105
Nonparametri	c Distributio	on Free Background Statistics	
Data appear to follow a	a Discernible	e Distribution at 5% Significance Level	
Nonparametric Upper Limits for I	BTVs(no dist	inction 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% Gamma USL 158

196.9

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.

95% USL 170

95% KM Chebyshev UPL 155.6

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 (M	langanese)	
General Statistics	22	Number of Distinct Observations	20
Total Number of Observations	3Z 0.041	Number of Distinct Observations	29 0.215
Second Largest	18	Median	0.313
Maximum	4.0 6.4	Third Quartile	13
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 Backgrou	und 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 No	t Normal at	5% Significance Level	
Background S	tatistics Ass	uming 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	e 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	e Level
Detected data appea	ir Gamma D	istributed 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 S	tatistics Ass	uming 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
	Lognorma	al 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 appea	r Lognorma	l at 5% Significance Level	

95% UTL with 95% Coverage	8.036	90% Percentile (z)	2
95% UPL (t)	4.747	95% Percentile (z)	2
95% USL	15.64	99% Percentile (z)	ç

#### 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.

		Res	ult (Sulfate)	
General Statistics				
	I otal Number of Observations	48	Number of Distinct Observations	1/
	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 Back	ground Threshold Values (BTVs)	
	Tolerance Factor K (For UTL)	2.069	d2max (for USL)	2.941
		Norr	mal GOF Test	
	Shapiro Wilk Test Statistic	0.901	Shapiro Wilk GOF Test	
	5% Shapiro Wilk Critical Value	0.947	Data Not Normal at 5% Significance Level	
	Lilliefors Test Statistic	0.155	Lilliefors GOF Test	
	5% Lilliefors Critical Value	0.127	Data Not Normal at 5% Significance Level	
	Data N	ot Norma	l 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
		Gam	ma GOF Test	
	A-D Test Statistic	3.502	Anderson-Darling Gamma GOF Test	
	5% A-D Critical Value	0.749	Data Not Gamma Distributed at 5% Significance Leve	9
	K-S Test Statistic	0.213	Kolmogorov-Smirnov Gamma GOF Test	
	5% K-S Critical Value	0.128	Data Not Gamma Distributed at 5% Significance Leve	el
	Data Not Gan	nma Distr	ributed 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 As	ssuming 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
	Lognorn	nal GOF Test	
Shapiro Wilk Test Statistic	0.596	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.251	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 St	atistics ass	uming 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
Nonparametri	c Distributi	on Free Background Statistics	
Data do not	follow a Di	scernible Distribution (0.05)	
Nonparametric U	oper 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 conserva	tive estimat	te of BIV, 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
<b>Coefficient of Variation</b>	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

	Norma	l GOF Test	
Shapiro Wilk Test Statistic	0.981	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0818	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Normal at 5% Significance Level	
Data app	ear Normal	at 5% Significance Level	
Background	Statistics As	suming Normal Distribution	
95% UTL with 95% Coverage	4599	90% Percentile (z)	4091
95% UPL (t)	4358	95% Percentile (z)	4326
95% USL	5162	99% Percentile (z)	4765
	Gamma	a GOF Test	
A-D Test Statistic	0.35	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.748	Detected data appear Gamma Distributed at 5% Significan	ce Level
K-S Test Statistic	0.0816	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.128	Detected data appear Gamma Distributed at 5% Significan	ce Level
Detected data appe	ar Gamma E	Distributed at 5% Significance Level	
	Gamma	a Statistics	
k hat (MLE)	24.9	k star (bias corrected MLE)	23.35
Theta hat (MLE)	131.1	Theta star (bias corrected MLE)	139.8
nu hat (MLE)	2390	nu star (bias corrected)	2242
MLE Mean (bias corrected)	3265	MLE Sd (bias corrected)	675.5
Background	Statistics As	suming Gamma Distribution	
95% Wilson Hilferty (WH) Approx. Gamma UPL	4464	90% Percentile	4155
95% Hawkins Wixley (HW) Approx. Gamma UPL	4483	95% Percentile	4449
95% WH Approx. Gamma UTL with 95% Coverage	4775	99% Percentile	5038
95% HW Approx. Gamma UTL with 95% Coverage	4807		
95% WH USL	5557	95% HW USL	5630
	Lognorm	al GOF Test	
Shapiro Wilk Test Statistic	0.953	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.947	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0883	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.127	Data appear Lognormal at 5% Significance Level	
Data appe	ar Lognorma	al at 5% Significance Level	
Background S	tatistics assu	uming Lognormal Distribution	
95% UTL with 95% Coverage	4922	90% Percentile (7)	4178
95% UPL (t)	4554	95% Percentile (z)	4506
95% USI	5902	99% Percentile (z)	5193
5578 OSE	229E		
Nonparametr	ic Distributio	on Free Background Statistics	
Data app	iear Normal	מו סיי סוקוווונמונע נפעפו	
Nonparametric U	pper Limits f	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

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 Backgro	ound Threshold Values (BTVs)	
Tolerance Factor K (For UTL)	2.117	d2max (for USL)	2.868
	Norma	I GOF Test	
Shapiro Wilk Test Statistic	0.747	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.94	Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.228	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.139	Data Not Normal at 5% Significance Level	
Data No	ot Normal a	t 5% Significance Level	
Background	Statistics As	suming 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	a GOF Test	
A-D Test Statistic	0.378	Anderson-Darling Gamma GOF Test	
5% A-D Critical Value	0.795	Detected data appear Gamma Distributed at 5% Significance	e Level
K-S Test Statistic	0.0812	Kolmogorov-Smirnov Gamma GOF Test	
5% K-S Critical Value	0.146	Detected data appear Gamma Distributed at 5% Significance	e Level
Detected data appea	ar Gamma I	Distributed at 5% Significance Level	
	Gamma	a 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 S	tatistics As	suming 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
	Lognorm	al GOF Test	

Shapiro Wilk Test Statistic	0.959	Shapiro Wilk Lognormal GOF Test
5% Shapiro Wilk Critical Value	0.94	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.083	Lilliefors Lognormal GOF Test

5% Lilliefors Critical Value	0.139	Data appear Lognormal at 5% Significance Level	
Data appe	ar Lognorm	al at 5% Significance Level	
Background S	tatistics ass	uming 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
Nonparametr	ic Distributi	ion Free Background Statistics	
Data appear G	amma Distr	ibuted at 5% significance Level	
Nonparametric U	pper 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 Approximate Sample Size needed to achieve specified CC	0.871 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 conserva Therefore, one may use USL to estimate a BTV and consists of observ The use of USL tends to provide a bala represents a background data set and v	itive estima ' only when 'ations colle ance betwee when many	te of BTV, especially when the sample size starts exceeding 20. the data set represents a background data set free of outliers cted from clean unimpacted locations. en false positives and false negatives provided the data onsite observations need to be compared with the BTV.	
	Res	ult (Iron)	
Conoral Statistics			
Total Number of Observations	/1	Number of Distinct Observations	36
Minimum	01	First Quartile	14
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
	a fau Baakau	aund Thread ald Maluas (PTMs)	
Tolerance Factor K (For UTL)	2.11	d2max (for USL)	2.878
	Norma	al 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	
	0.293	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.137 ot Normal a	Data Not Normal at 5% Significance Level	
Background	Statistics A	ssuming 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
	Gamm	a 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% Significanc	e 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% Significanc	e Level

Detected data appear Gamma Distributed at 5% Significance Level

	Gamma	a 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 As	suming 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
	Lognorm	al GOF Test	
Shapiro Wilk Test Statistic	0.979	Shapiro Wilk Lognormal GOF Test	
5% Shapiro Wilk Critical Value	0.941	Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.0554	Lilliefors Lognormal GOF Test	
5% Lilliefors Critical Value	0.137	Data appear Lognormal at 5% Significance Level	
Data appe	ar Lognorma	al at 5% Significance Level	
Packground S	hatistics assu	ming Lognormal Distribution	
		Iming Lognormal Distribution	40.10
95% OTE WITH 95% COVERAGE	222.5 10E 2	90% Percentile (2)	48.19
95% OPL (I) 05% USI	105.2 017 7	95% Percentile (2)	94.24 221.6
93% 03L	917.7	99% Percentile (2)	551.0
Nonparametr	ic Distributio	on Free Background Statistics	
Data appear G	amma Distri	buted at 5% Significance Level	
Nonparametric U	pper Limits f	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.