Western Refining

WNR
NYSE

March 8, 2018

Via Certified Mail
Return Reciept No. 70162140000038673819

Randy Bayliss
New Mexico Energy, Minerals & Natural Resources Dept.
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, NM 87505

pENV0006W00042

Re: 2017 Annual Report – Former Giant Bloomfield Refinery
OCD Discharge Permit GW-040

Dear Mr. Bayliss:

Please find enclosed the 2017 Annual Report for the former Giant Bloomfield Refinery located in the NW quarter of Section 27 and SW quarter of Section 22, Township 29N, Range 12W in San Juan County, New Mexico. This Annual Report contains a summary of groundwater monitoring activities conducted between January, 2017 and December, 2017.

If you should have any questions or require additional information, please do not hesitate to contact me at (915) 534-1483.

Sincerely,

Allen S. Hains

ALLEN S. HAINS
Manager, Remediation Projects
Western Refining Southwest, Inc.

Cc: Brandon Powell, NM OCD Aztec District Office
Via Certified Mail Return Receipt No. 70162140000038673840

2017 ANNUAL REPORT

FORMER GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO
DISCHARGE PERMIT GW-040

FEBRUARY 2018

WESTERN REFINING SOUTHWEST, INC.
Bloomfield, New Mexico

2017 ANNUAL REPORT

FORMER GIANT BLOOMFIELD REFINERY
BLOOMFIELD, NEW MEXICO
DISCHARGE PERMIT GW-040

FEBRUARY 2018

Prepared for:

WESTERN REFINING SOUTHWEST, INC.
111 County Road 4990
Bloomfield, New Mexico 87413

Prepared by:

LT ENVIRONMENTAL, INC.
848 East 2nd Avenue
Durango, Colorado 81301
(970) 385-1096

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EXECUTIVE SUMMARY

This 2017 Annual Report summarizes work completed from January 2017 through December 2017 at the former Giant Bloomfield Refinery (Site) in Bloomfield, New Mexico. The scope of work for this project was the continued monitoring of petroleum hydrocarbon impacts to groundwater identified upon cessation of refinery operations. The Site is operated by Western Refining Southwest, Inc. (Western) and regulated by the New Mexico Oil Conservation Division (NMOCD) through Discharge Permit GW-040 that was originally issued for a groundwater recovery and remediation system consisting of groundwater recovery wells, a carbon filtration unit, and a treated-water infiltration trench. 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. As noted in previous annual reports, sampling of the influent to the treatment system had not detected the presence of volatile organic compounds (VOCs) in 13 years. Due to these observed conditions, in 2015 Western implemented more intensive monitoring of the groundwater to evaluate background water quality and the extent of any residual impact. To facilitate the evaluation, compliance samples were analyzed for additional parameters and additional groundwater samples were collected. The recovery system was shut off in August 2015 and Western monitored groundwater elevations, water quality, and phase-separated hydrocarbon (PSH) accumulation for a 5-month period under static conditions. Observations indicated no measurable change in groundwater conditions after ceasing the recovery operations.

Based on the favorable observations in 2015, Western did not resume pumping operations, but continued more frequent groundwater monitoring in 2016 to confirm equilibrium conditions and better characterize residual impact. Monthly voluntary monitoring of static groundwater conditions continued throughout 2017. Annual groundwater monitoring was conducted in December 2017. Groundwater samples were analyzed in accordance with Discharge Permit GW-040. Laboratory analytical results indicated VOCs and polycyclic aromatic hydrocarbons (PAHs) were not detected in exceedance of the New Mexico Water Quality Control Commission (NMWQCC) standards in groundwater samples collected from monitoring wells and recovery wells. Additionally, at the request of the New Mexico Department of Transportation (NMDOT) and with approval from the New Mexico Office of the State Engineer (NMOSE) and the NMOCD, Western plugged and abandoned 5 offsite monitoring wells SHS-1 through SHS-5 that were located in the NMDOT right of way. Prior to plugging and abandonment activities, groundwater samples were collected from the monitoring wells and analytical results did not exceed NMWQCC Standards.

1.0 INTRODUCTION

This 2017 Annual Report summarizes groundwater monitoring activities completed between January 2017 and December 2017 at the former Giant Bloomfield Refinery (Site) in Bloomfield, New Mexico. The Site is operated by Western Refining Southwest, Inc. (Western) and currently regulated by the New Mexico Oil Conservation Division (NMOCD) under a discharge permit (GW-040); however, Western did not discharge any water at the Site during 2017. 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. As noted in previous annual reports, sampling of the influent to the treatment system had not detected the presence of volatile organic compounds (VOCs) in 13 years. Due to these observed conditions, in 2015 Western implemented more intensive monitoring of the groundwater to evaluate background water quality and the extent of any residual impact. To facilitate the evaluation, compliance samples were analyzed for additional parameters and additional groundwater samples were collected. The recovery system was shut off in August 2015 and Western monitored groundwater elevations, water quality, and phase-separated hydrocarbon (PSH) accumulation for a 5-month period under static conditions. Observations indicated no measurable change in groundwater conditions after ceasing the recovery operations. Based on the favorable observations in 2015, Western did not resume pumping operations, but continued more frequent groundwater monitoring. Western monitored monthly static groundwater conditions at the Site during 2017 to confirm those conclusions and conducted annual compliance sampling. Additionally, at the request of the New Mexico Department of Transportation (NMDOT) and with approval by the New Mexico Office of the State Engineer (NMOSE) and the NMOCD, Western plugged and abandoned monitoring wells SHS-1 through SHS-5. Prior to plugging and abandonment activities, groundwater samples were collected from these monitoring wells.

1.1 SITE DESCRIPTION

The Site is on the northeast corner of United States Highway 64 and County Road 3500, approximately five 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). Components of the former remediation system still on site include two control buildings, two carbon filtration tanks, an aboveground storage tank, an infiltration trench, groundwater monitoring wells, and groundwater recovery wells (Figure 2).

1.2 SITE HISTORY

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 is currently inactive. The refining operations and subsequent truck loading and unloading activities impacted groundwater, which was identified and investigated as part of the site closure requirements prescribed by the NMOCD in 1986. Details of a subsurface investigation and initial remediation efforts are contained in a 1987 report entitled, *Soil and Groundwater Investigations and Remedial Action Plan, Giant Industries, Inc. Bloomfield Refinery, Bloomfield, New Mexico*. The investigation identified three source areas (Figure 2):

- Northern Area (Diesel Spill Area): 10,000 to 15,000 gallons of diesel were released from a pipeline in 1985;
- Central Area (Truck Fueling Area): 15,000 gallons of diesel were released from a pipeline in 1986; and
- Southern Area: Historical releases from a former firefighting drill area east and upgradient of the Site that may have collected in a former seep and a stormwater catchment area.

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 a series of lagoons used for disposal of a variety of liquid wastes. 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. In April 1985, a breach in the dike retaining the lagoons released liquid wastes into an arroyo west of the Site. The arroyo drains south toward the Lee Acres Subdivision, where the NMOCD and the New Mexico Environment Department (NMED) identified impacted groundwater in domestic water wells in 1988. In response, the NMOCD required Giant to investigate petroleum hydrocarbon impacts to groundwater downgradient of the refinery in the Lee Acres Subdivision, and the NMED conducted a separate investigation to identify potential impacts from the landfill. The results of the subsurface investigation conducted by Giant south of the refinery are contained in three volumes of the 1992 report, *Remedial Investigation Report for Lee Acres Landfill*. The NMED, in conjunction with the Bureau of Land Management (BLM) and the United States Geological Survey (USGS), published their results in three reports referenced in Section 6.0 of this report.

The investigations identified two separate plumes of impacted groundwater that commingled across the refinery and flowed downgradient into the Lee Acres Subdivision. Groundwater contaminants detected in the refinery plume included phase-separated hydrocarbons (PSH) and dissolved-phase petroleum hydrocarbons. The dissolved-phase constituents included benzene, toluene, ethylbenzene, and total xylenes (BTEX), naphthalene, and 1,2 dichloroethane (EDC). The landfill contaminant plume contained total dissolved solids (TDS), chloride, sulfate, manganese, metals, BTEX, naphthalene, 1,1 dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, tetrachloroethene (PCE), 1,1,1-trichloroethane, and trichloroethene (TCE).

Beginning in 1988, Giant installed a groundwater recovery, treatment, and disposal system in stages 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 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, then treated the groundwater with an air stripper and carbon filtration and re-injected treated groundwater into the subsurface through two infiltration trenches. Western acquired the Site from Giant in June 2007.

As groundwater quality improved over time, the remediation system was gradually simplified and eventually shut down following extensive assessment of site conditions. 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 in an effort 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* submitted to the NMOCD. Pumping and treating operations were resumed in February 2009.

Western stopped recovering groundwater south of Highway 64 in 2009 as groundwater sampling results indicated no change to contaminant concentrations. 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. The water then passed through the treated water infiltration trench.

Following 13 years of regular influent and effluent sampling without the detection of volatile organic compounds (VOCs), Western conducted another 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 static conditions. Assessment results suggested 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 impact at the Site. 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*.

In August 2015, additional groundwater samples were collected from select monitoring wells in an attempt to establish a reference for groundwater conditions when the remediation system is 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 the remediation system 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 by Environmental Protection Agency (EPA) Method 300.0, BTEX by EPA Method 8260B, total petroleum hydrocarbon (TPH)-gasoline range organics (GRO) by EPA Method 8015D, and TPH- diesel range organics (DRO) by EPA Method 8015M/D. Follow-up samples were collected after the system was turned off and groundwater conditions were allowed to equilibrate. Sampling from these monitoring wells under equilibrium conditions continued in March, July, and October of 2016 and were documented in the 2016 Annual Report.

1.3 SITE HYDROLOGY

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 paleo channel 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 section on Figure 3.

The subsurface geology is a controlling feature for groundwater flow direction and potential contaminant migration. Shallow groundwater is generally unconfined with some local areas potentially under semi-confined conditions. There are two aquifers of concern that are in direct hydraulic communication: a shallow aquifer composed of recent alluvial materials 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 with larger radii of influence.

1.4 SCOPE OF WORK

The scope of work for this project in 2017 included, quarterly and monthly monitoring of groundwater quality and the presence of PSH under equilibrium conditions, an annual compliance groundwater sampling event, and the plugging and abandonment of SHS-1 through SHS-5 which included the collection of additional groundwater samples. A summary of field activities, results, and conclusions, as related to annual discharge permit compliance and monitoring results are presented in the subsequent sections of this report.

2.0 METHODOLOGY

2.1 ANNUAL GROUNDWATER MONITORING COMPLIANCE

Although no discharge occurred during 2017, Western conducted annual compliance sampling of wells specified in Discharge Permit GW-040.

Western measured depth to groundwater quarterly at 53 monitoring wells and 15 former recovery wells with a Keck oil-water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water before each measurement. Depth to groundwater measurements were used to calculate quarterly groundwater elevations at the Site to determine direction of groundwater flow.

Annual groundwater compliance samples were collected in December 2017. Samples were collected from groundwater monitoring wells and former recovery wells within and south of Highway 64 as specified in Discharge Permit GW-040. The volume of groundwater in the wells was calculated and a minimum of three well casing volumes of groundwater was purged from each well using a disposable bailer. As groundwater was extracted, pH, electrical conductivity (EC), and temperature were monitored. Wells were purged until these properties stabilized or the well was bailed dry, indicating the purge water was representative of aquifer conditions. Stabilization was defined as three consecutive stable readings for each water property (plus or minus (±) 0.4 units for pH, ±10 percent for EC, and ±2 degrees Celsius for temperature). Once each well was properly purged, groundwater samples were collected in bottles or vials and shipped to Hall Environmental Analysis Laboratory (HEAL) of Albuquerque, New Mexico. Groundwater samples collected from monitoring wells GRW-3, GRW-6, GBR-17, GBR-24D, GBR-30, GBR-31, GBR-32, GBR-48, GBR-49, GBR-50, GBR-51, GBR-52, and SHS-8 were analyzed for VOCs according to EPA Method 8260B and general water chemistry (GWC) parameters including pH by EPA Standard Method 4500, EC by EPA Method 2510B, TDS by EPA Standard Method 2540C, alkalinity by EPA Standard Method 2320B, hardness by EPA Standard Method 2340B, anions (bromide, chloride, sulfate, fluoride, nitrite, nitrate, and phosphorus) by EPA Method 300.0, and cations (calcium, iron, magnesium, potassium, and sodium) by EPA Method 200.7. Groundwater samples collected from monitoring wells GRW-3, GRW-6, GBR-17, GBR-24D, GBR-30, and GBR-31 were also analyzed for polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8270C. Groundwater samples collected from GBR-32, GBR-48, GBR-49, and GBR-50 were also analyzed for metals (barium, beryllium, cadmium, chromium, copper, lead, nickel, silver, zinc, antimony, arsenic, selenium, thallium, and mercury).

2.2 VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS

In August 2015, additional monthly monitoring efforts were implemented to assess the effectiveness of remediation activities. These efforts continued in 2017 as part of an additional site investigation to understand remaining impact at the Site. Monthly monitoring activities included measuring depth to water, depth to product, field headspace, and observing for the presence of sheen and odor. Wells included in the monthly monitoring consisted of monitoring wells and former recovery wells within the facility boundary and within the easement located

south of Highway 64. This did not include upgradient monitoring wells, cross-gradient monitoring and recovery wells, and monitoring and former recovery wells located south of monitoring well SHS-19 (Figure 5).

2.3 GROUNDWATER MONITORING OF SHS-1 THROUGH SHS-5

At the request of the NMDOT, Western submitted Well Plugging Plans of Operations to the 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. On June 14, 2017, each well was cemented to the surface and the well vault was removed per the NMOSE requirements. Prior to the plugging and abandonment activities, groundwater samples were collected from monitoring wells SHS-1, SHS-2, SHS-4, and SHS-5 and submitted to HEAL for laboratory analysis of GWC parameters including pH by EPA Standard Method 4500, EC by EPA Method 2510B, TDS by EPA Standard Method 2540C, alkalinity by EPA Standard Method 2320B, hardness by EPA Standard Method 2340B, anions (chloride and sulfate) by EPA Method 300.0, and cations (calcium, magnesium, potassium, and sodium) by EPA Method 200.7, and TPH-GRO, TPH-DRO, and TPH-motor oil range organics (MRO) by EPA Method 8015D. A sample was not collected from monitoring well SHS-3 due to an obstruction in the well.

3.0 RESULTS

3.1 ANNUAL GROUNDWATER MONITORING COMPLIANCE

Groundwater elevations measured in groundwater monitoring and recovery wells are presented in Table 1, and quarterly potentiometric surface maps are depicted on Figures 6 through 9. Groundwater flow direction was consistently toward the southwest throughout the year.

Laboratory analytical results from annual groundwater compliance sampling are presented in Table 2, and the complete laboratory analytical reports are presented in Appendix A. Isopach maps and geologic cross sections illustrating the distribution of analytes are not included due to the fact that sampling events do not include wells from all of the current source areas. Such a presentation of results would not be indicative of actual conditions at the Site. Laboratory analytical results from 2017 as compared to New Mexico Water Quality Control Commission (NMWQCC) standards are summarized below:

- VOCs were detected in the annual groundwater samples in trace concentrations that did not exceed NMWQCC standards;
    - EDC was detected in groundwater from monitoring well GBR-24D;
    - PCE was detected in groundwater from monitoring wells GBR-30, GBR-32 and GBR-48;
    - TCE was detected in groundwater from monitoring well GBR-48; and
    - Sec-butylbenzene and tert-butylbenzene were detected in groundwater from monitoring well GRW-3;
- PAHs were detected in the annual groundwater samples in trace concentrations that did not exceed NMWQCC standards;
    - Naphthalene, Acenaphthene, and Fluorene was detected in groundwater from former recovery well GRW-3;
- Sulfate concentrations exceeded the NMWQCC standard in all samples collected from groundwater monitoring and former recovery wells;
- TDS exceeded the NMWQCC standard in all samples collected from the groundwater monitoring and former recovery wells;
- Chloride concentrations exceeded the NMWQCC standard in groundwater samples collected from up-gradient wells GBR-32, and GBR-48;
- Chromium concentrations in groundwater from GBR-32, GBR-48, and GBR-50 exceeded the NMWQCC standard. Chromium was detected in GBR-49 but did not exceed the NMWQCC standard. These monitoring wells are located within the arroyo adjacent to and upgradient of the Site;
- Iron was detected in concentrations exceeding the NMWQCC standard in annual groundwater samples from all groundwater monitoring and former recovery wells, except GBR-49, GBR-51 and GBR-52;

- Manganese was detected in concentrations exceeding the NMWQCC standard in annual groundwater samples from all groundwater monitoring and former recovery wells, except GBR-51 and GBR-52;

3.2 VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS

Groundwater elevations and PSH measured in groundwater monitoring and recovery wells and water quality observations are presented in Table 3, monthly potentiometric surface maps are depicted on Figures 10 through 21. PSH was observed in monitoring wells GBR-5, GBR-7, GBR-23, and GBR-41. Results indicate no change from historical results with the exception of depressions around groundwater recovery wells which no are longer in operation following the system shutdown.

3.3 GROUNDWATER MONITORING OF SHS-1 THROUGH SHS-5

Laboratory analytical results from groundwater samples collected at SHS-1, SHS-2, SHS-4, and SHS-5 are presented in Table 4, and the complete laboratory analytical reports are presented in Appendix A.

4.0 CONCLUSIONS

By 2015, Western had documented over 13 years of pumping and treating groundwater that did not contain detectable concentrations of VOCs. Western shut down the pump and treat system in August 2015, to evaluate its effectiveness at addressing residual impact at the Site. Continued monitoring and sampling conducted under equilibrium conditions suggest the remediation system was not actively remediating contaminants of concern at the Site and Western did not reactivate the system.

Conclusions from the continued monitoring of static groundwater conditions at the Site include:

- PSH accumulation did not change significantly from observations during pumping conditions:
    - Although measurable PSH was observed in monitoring wells GBR-5, GBR-7, GBR-23, and GBR-41, these wells have historically contained PSH;
    - There was no PSH migration into monitoring wells where PSH had not previously been observed;
- Groundwater impacted by hydrocarbons is characterized by presence of PSH and little to no dissolved-phase hydrocarbons regulated by the NMWQCC.
- Field observations and laboratory analytical results indicate impacted areas are consistent with previously identified source areas and do not appear to have been affected by the cessation of pump and treat remediation efforts.

Annual Compliance sampling was conducted in December 2017. Contaminants of concern were either not detected in groundwater samples or, if detected, can be attributed to an upgradient source or naturally occurring background conditions. Annual groundwater samples collected from monitoring and recovery wells did not contain VOCs or PAHs exceeding NMWQCC standards.

Annual groundwater monitoring well samples are consistently compliant with standards for general chemistry parameters and metals, with the exception of TDS, chloride, and sulfate. Elevated sulfate, chloride, and TDS are historically characteristic of groundwater at the Site and are most likely related to historic releases at the Lee Acres Landfill reported in 1985. These analytes were identified in earlier studies as constituents within the groundwater contaminant plume that originated from the landfill. Previous investigations at the landfill reported elevated levels of chloride present in the water sampled from the liquid waste lagoons (McQuillan, D. and Longmire, P., *Water Quality Investigations at the Lee Acres Landfill and Vicinity, San Juan County, New Mexico*), and the landfill accepted produced water from natural gas well operations in the San Juan Basin. During initial landfill investigations, the upgradient area near GBR-32, GBR-48, GBR-49, and GBR-50 was identified as the "northern containment slug." Groundwater representative of this area contained TDS concentrations ranging from 2,125 milligrams per kilogram (mg/kg) to 6,068 mg/kg, sulfate concentrations ranging from 1,920 mg/kg to 5,830 mg/kg, and chloride concentrations ranging from 14.7 mg/kg to 2,110 mg/kg (Roy F. Weston, Inc., *Remedial Investigation Report for Lee Acres Landfill, Volume 1*).

Heavy metals, including chromium, iron, manganese, and nickel were detected in groundwater monitoring and former recovery wells during the annual sampling in December 2017. Additionally, chromium, iron and manganese concentrations exceeded NMWQCC standards. Previous studies conducted for the Lee Acres Landfill identified chromium, iron, lead, manganese, nickel, and selenium in groundwater sampled upgradient of the Site. *The Remedial Investigation Report for Lee Acres Landfill, Volume 1* states that the upgradient background alluvial aquifer contains elevated levels of chromium and manganese and suggests an unidentified source that is unrelated to the landfill or the Site.

It is apparent that the remediation system successfully remediated petroleum hydrocarbon impacts as 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, Western has demonstrated the remediation system has no effect on existing hydrocarbon groundwater impacts or the migration of impacts off site. Residual impacts at the Site consist of PSH accumulations, which based on thicknesses measured and locations consistent with original source areas, are likely to be adsorbed by soil in the three original source areas. With no active source, the residual contaminants are not likely to migrate with or without the hydraulic barrier introduced by the remediation system.

5.0 REFERENCES

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RPS JDC Consulting, *Review of Groundwater Remediation System, Old Giant Bloomfield Refinery, Bloomfield, New Mexico,* June 2009.

FIGURES

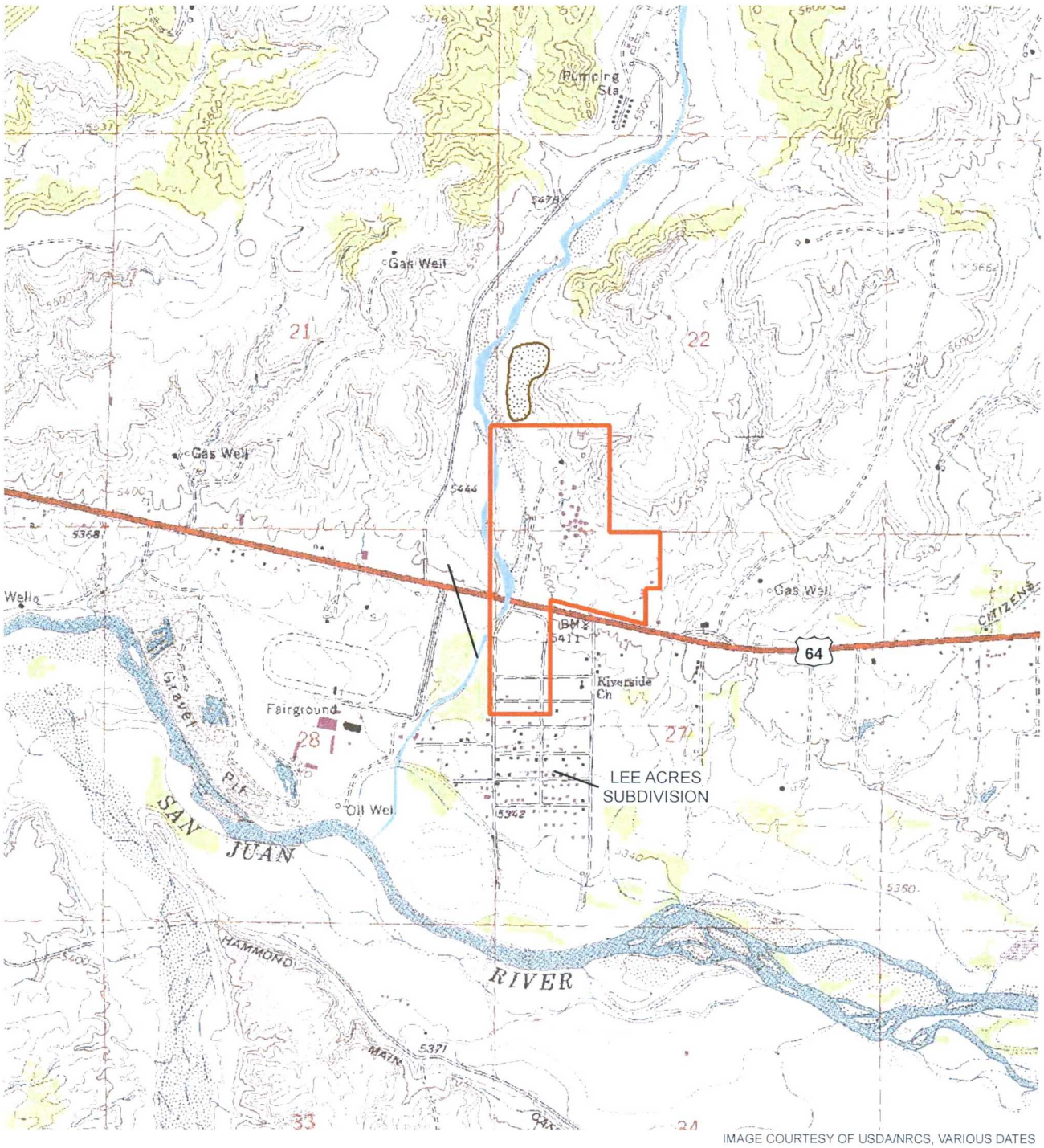

IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

0 2,000 4,000

Feet

N

LEGEND

- SITE LOCATION
- ARROYO
- FORMER LEE ACRES LANDFILL

FIGURE 1
SITE LOCATION MAP
FORMER GIANT BLOOMFIELD REFINERY
SWSW SEC 22 & WNW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

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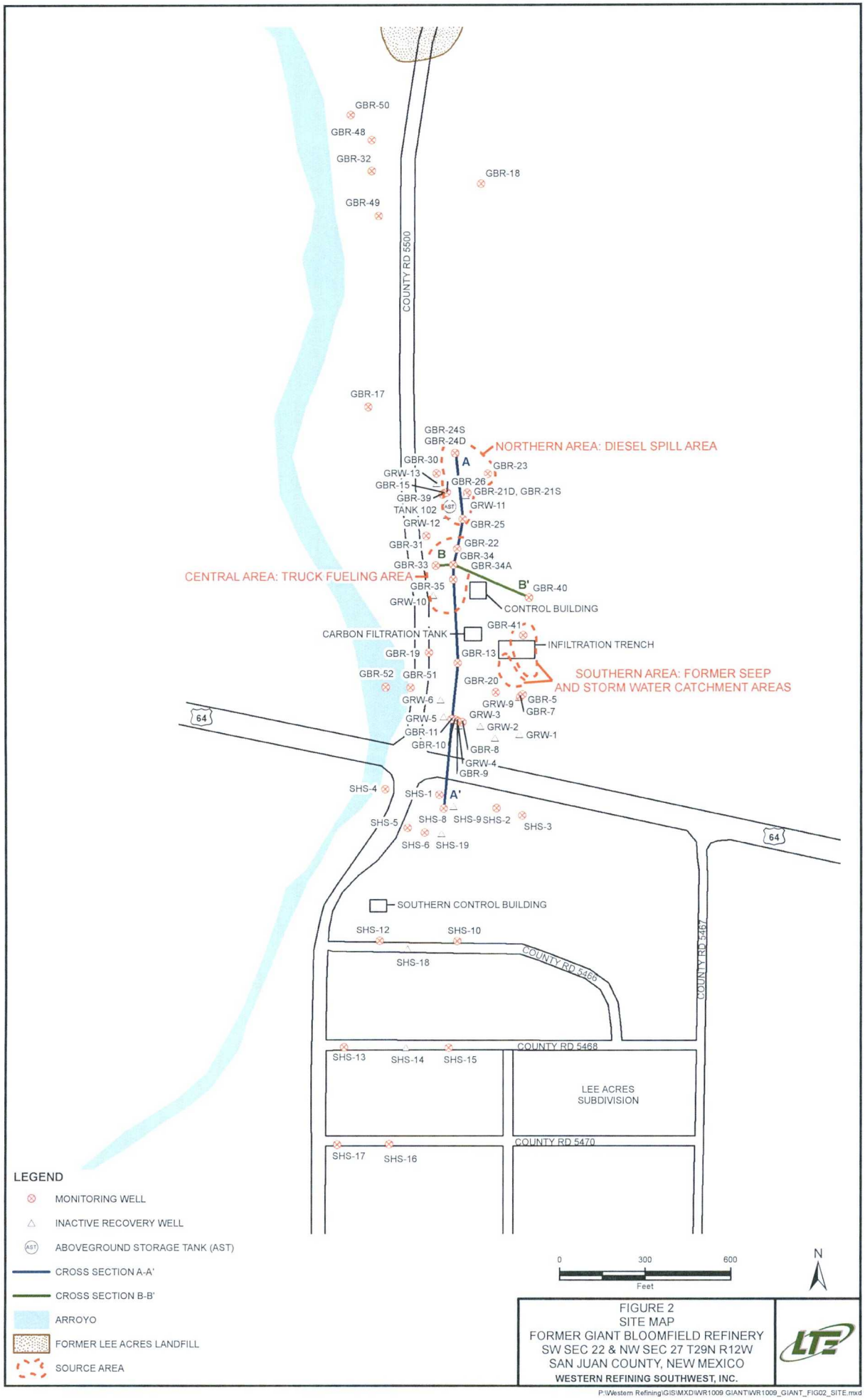
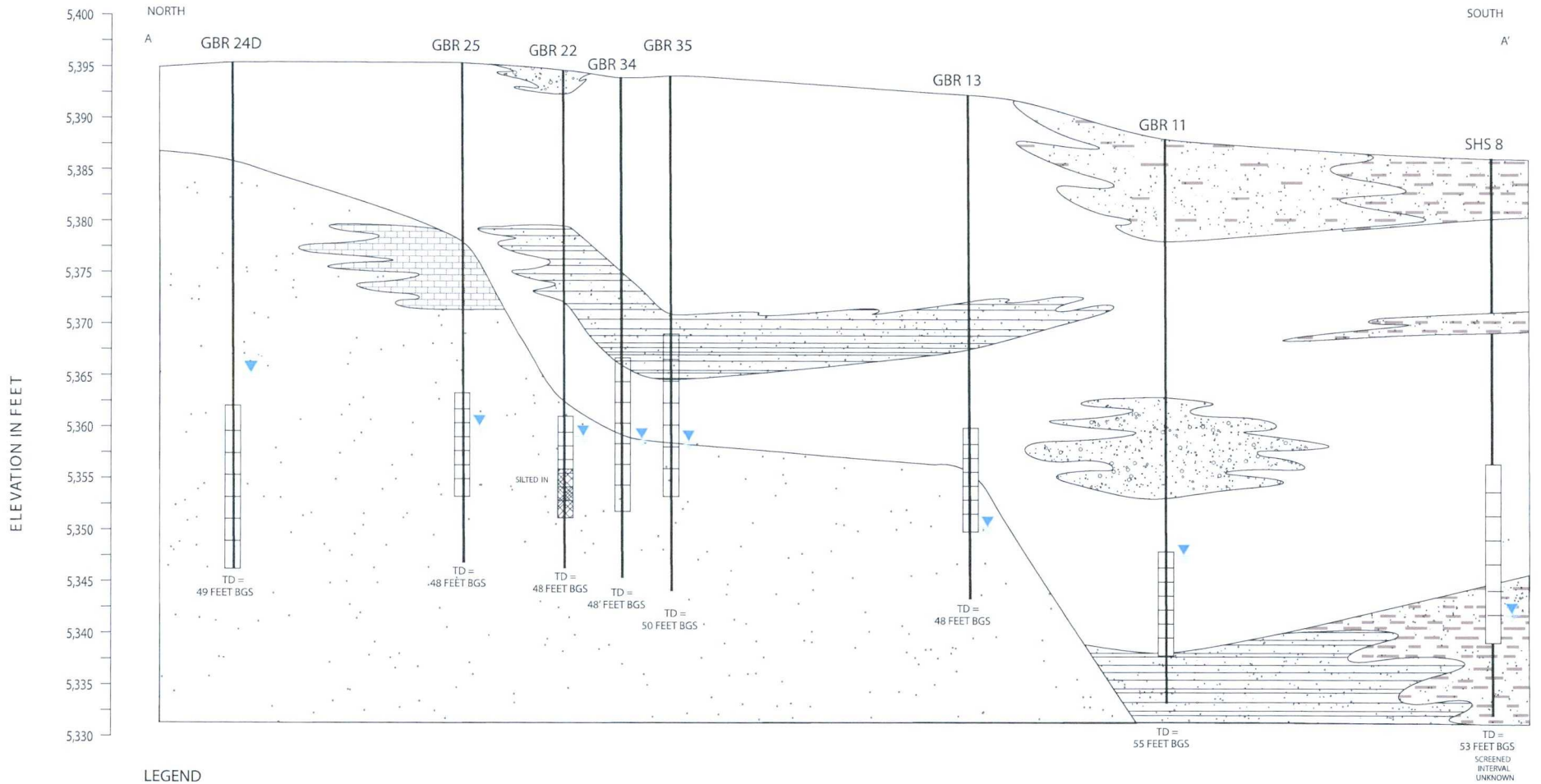


FIGURE 2
SITE MAP
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\WR1009_GIANT_FIG02_SITE.mxd



LEGEND

- SANDY SILT
- CLAYEY SAND
- SILTY SAND
- SAND
- PEBBLES/GRAVEL
- NACIMIENTO SHALE
- NACIMIENTO SANDSTONE
- BOREHOLE
- SCREENED INTERVAL
- BGS — BELOW GROUND SURFACE
- TD — TOTAL DEPTH IN FEET
- GROUNDWATER ELEVATION FROM OCTOBER 2017

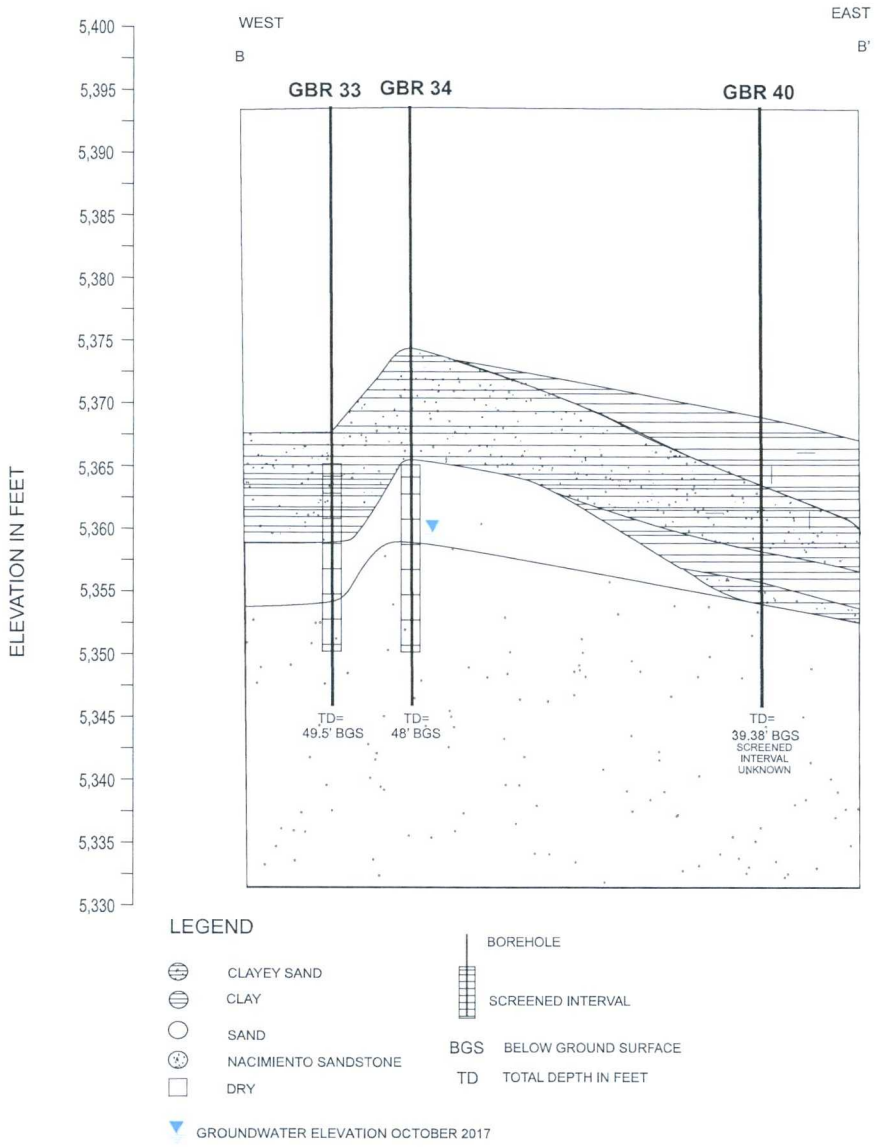
HORIZONTAL SCALE
1" = 10 FEET

VERTICAL SCALE
1" = 90 FEET

FIGURE 3
CROSS SECTION A-A'
FORMER GIANT BLOOMFIELD REFINERY
SWSW SEC 22 &WNW SEC 27 T29N R12W
WESTERN REFINING SOUTHWEST, INC.

LTE

WR1009 1/16



HORIZONTAL SCALE
1" = 10 FEET

VERTICAL SCALE
1" = 90 FEET

FIGURE 4
CROSS SECTION B-B'
FORMER GIANT BLOOMFIELD REFINERY
SWSW SEC 22 &WNW SEC 27 T29N R12W
WESTERN REFINING SOUTHWEST, INC.

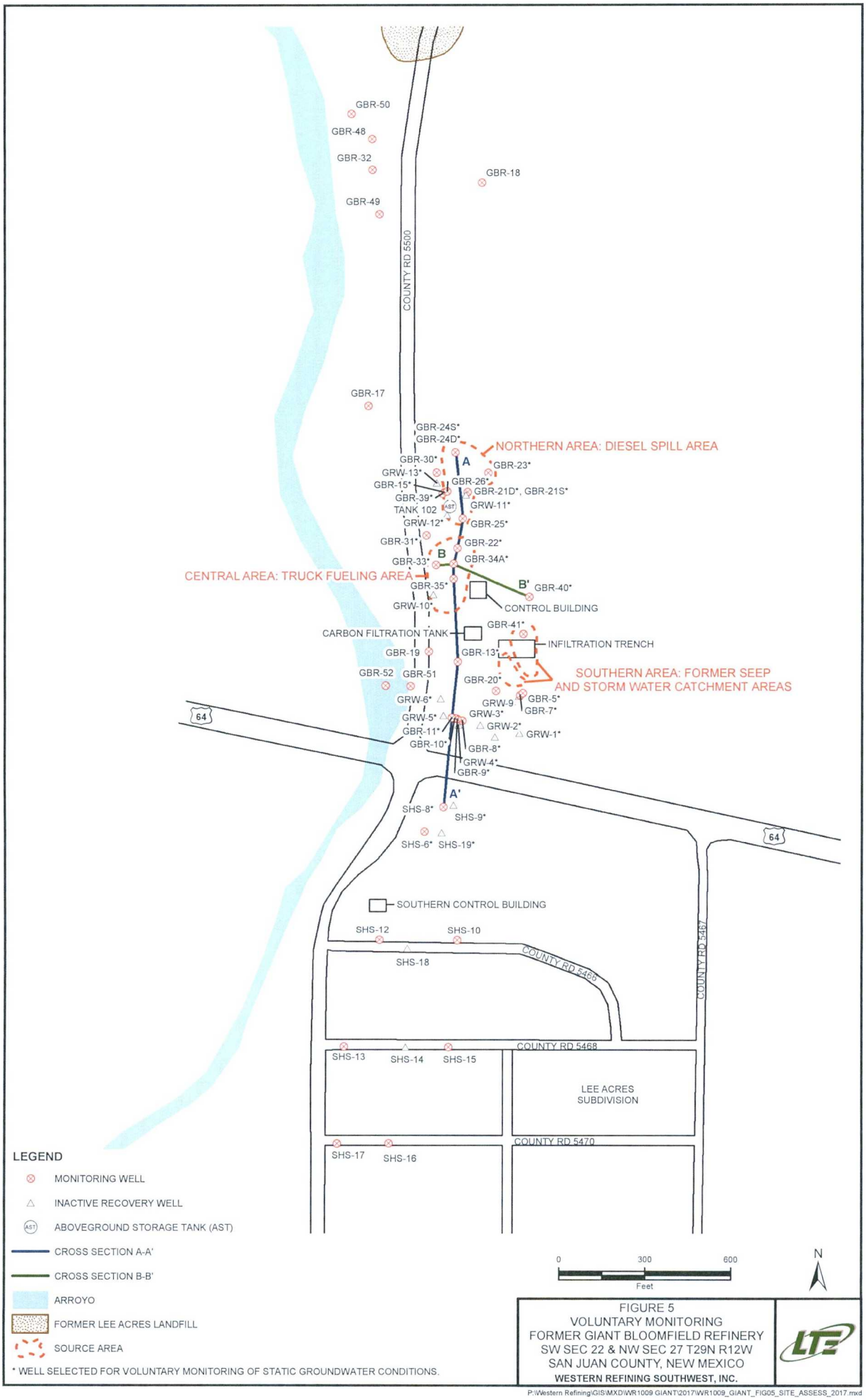


FIGURE 5
VOLUNTARY MONITORING
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG05_SITE_ASSESS_2017.mxd

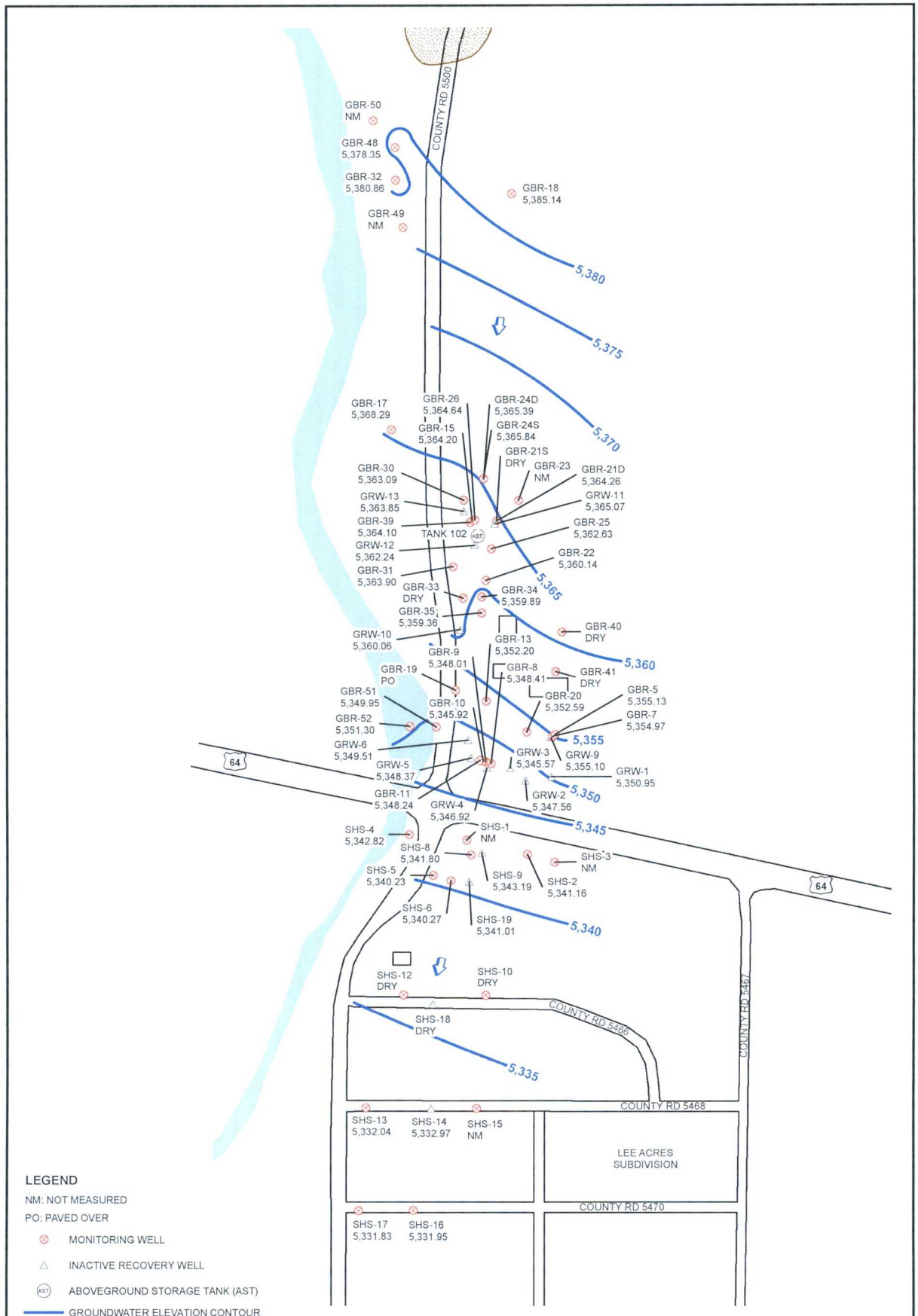


FIGURE 6
GROUNDWATER POTENTIOMETRIC SURFACE MAP (JANUARY 2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG06_GWELEV_JAN_2017.mxd

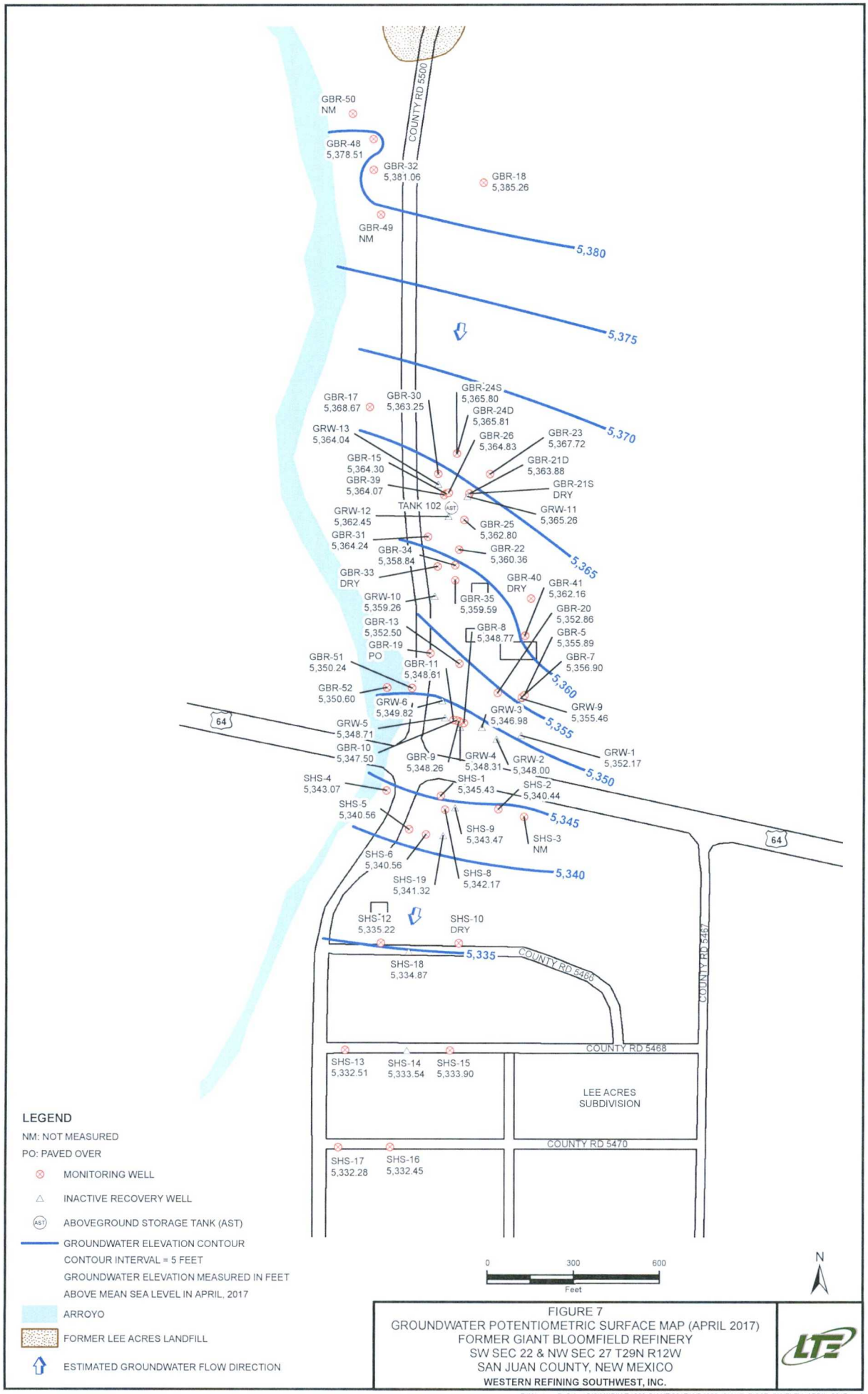
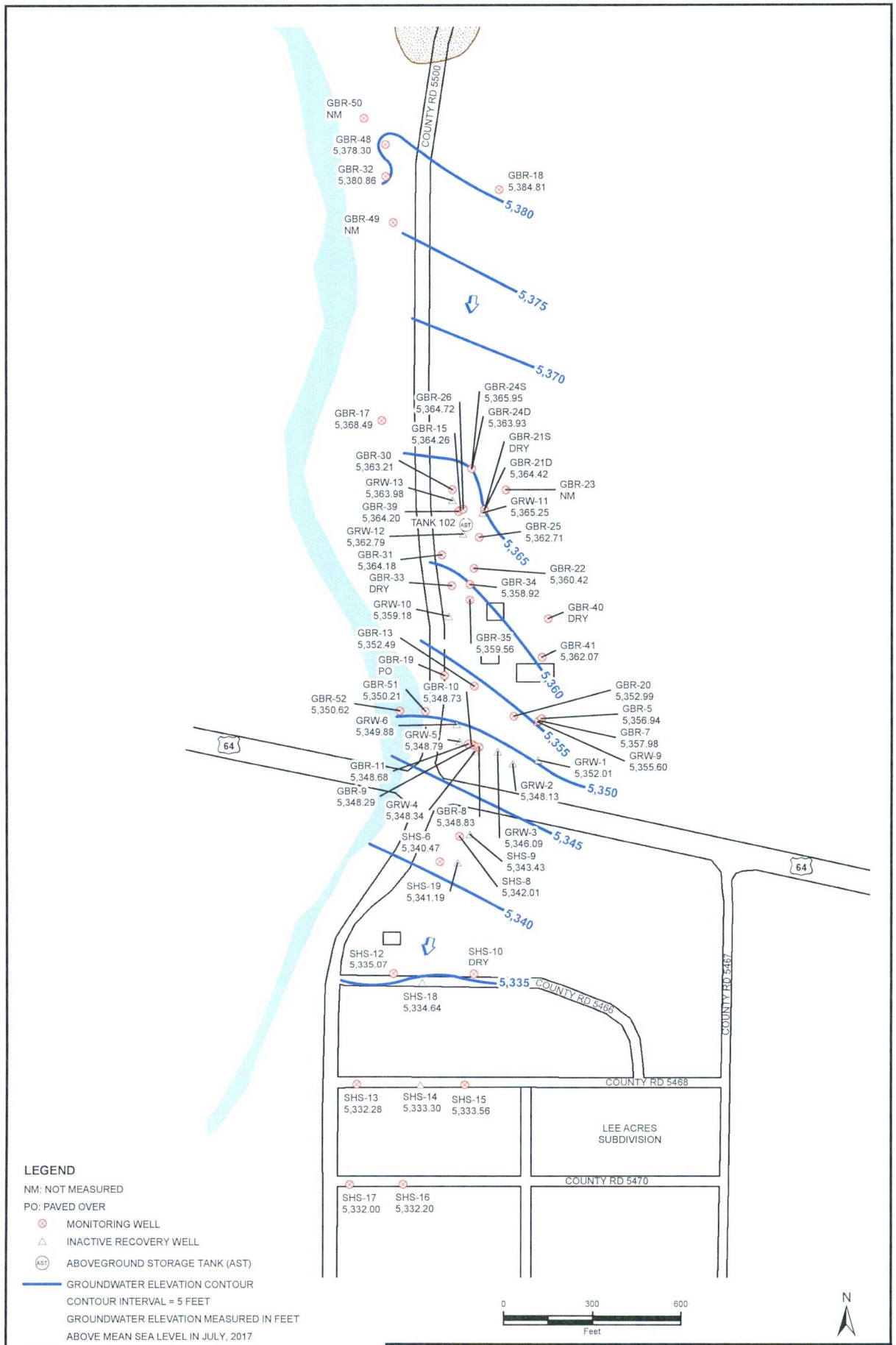


FIGURE 7
GROUNDWATER POTENTIOMETRIC SURFACE MAP (APRIL 2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG07_GWELEV_APRIL_2017.mxd



LEGEND

NM: NOT MEASURED

PO: PAVED OVER

- MONITORING WELL
- INACTIVE RECOVERY WELL
- ABOVEGROUND STORAGE TANK (AST)
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 5 FEET
  GROUNDWATER ELEVATION MEASURED IN FEET
  ABOVE MEAN SEA LEVEL IN JULY, 2017
- ARROYO
- FORMER LEE ACRES LANDFILL
- ESTIMATED GROUNDWATER FLOW DIRECTION

FIGURE 8
GROUNDWATER POTENTIOMETRIC SURFACE MAP (JULY 2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG08_GWELEV_JULY_2017.mxd

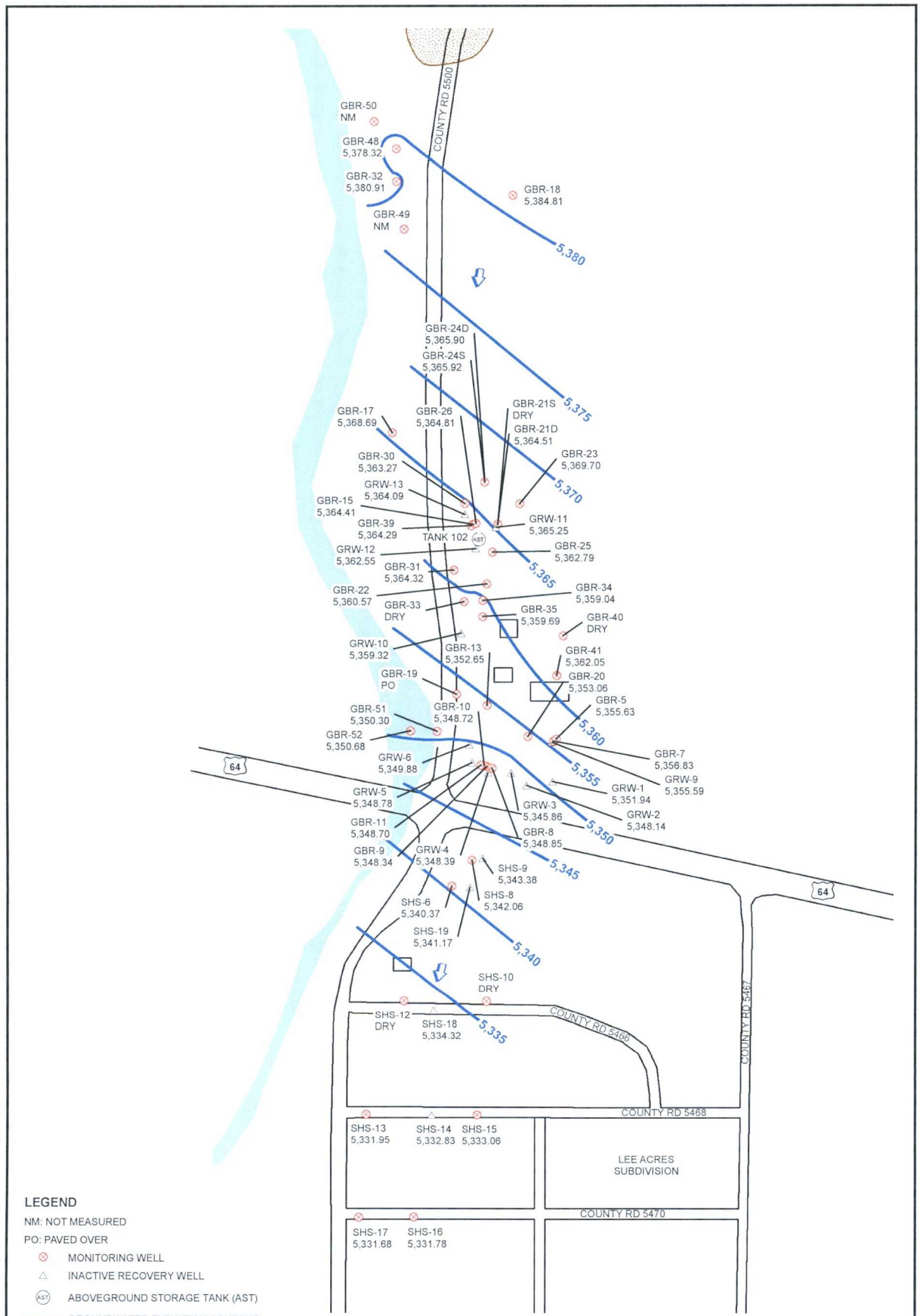


FIGURE 9
GROUNDWATER POTENTIOMETRIC SURFACE MAP (OCTOBER 2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG09_GWELEV_OCT_2017.mxd

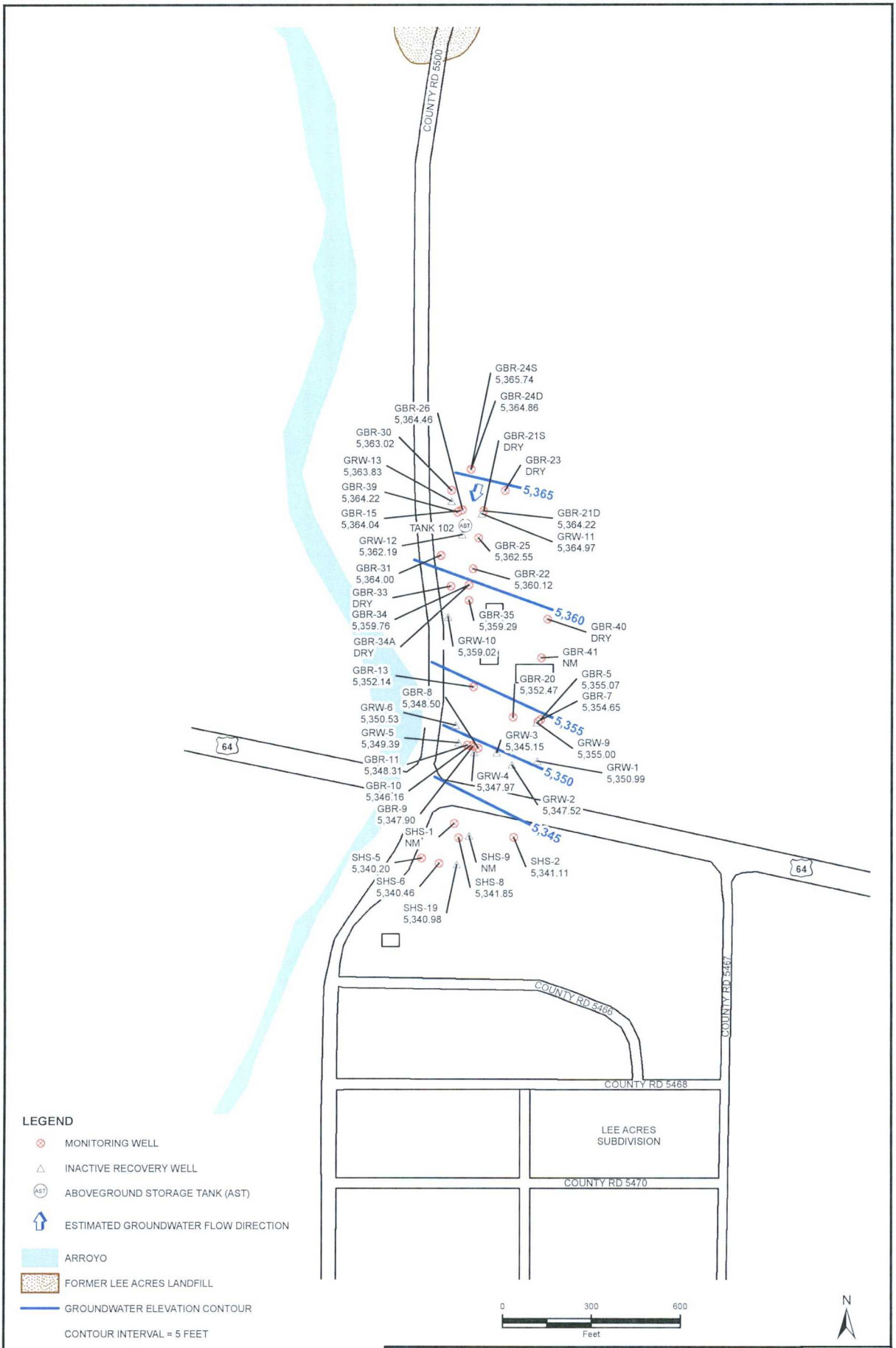


FIGURE 10
GROUNDWATER POTENTIOMETRIC SURFACE MAP (1/25/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG010_GWELEV_SHUTDOWN_JAN_2017.mxd

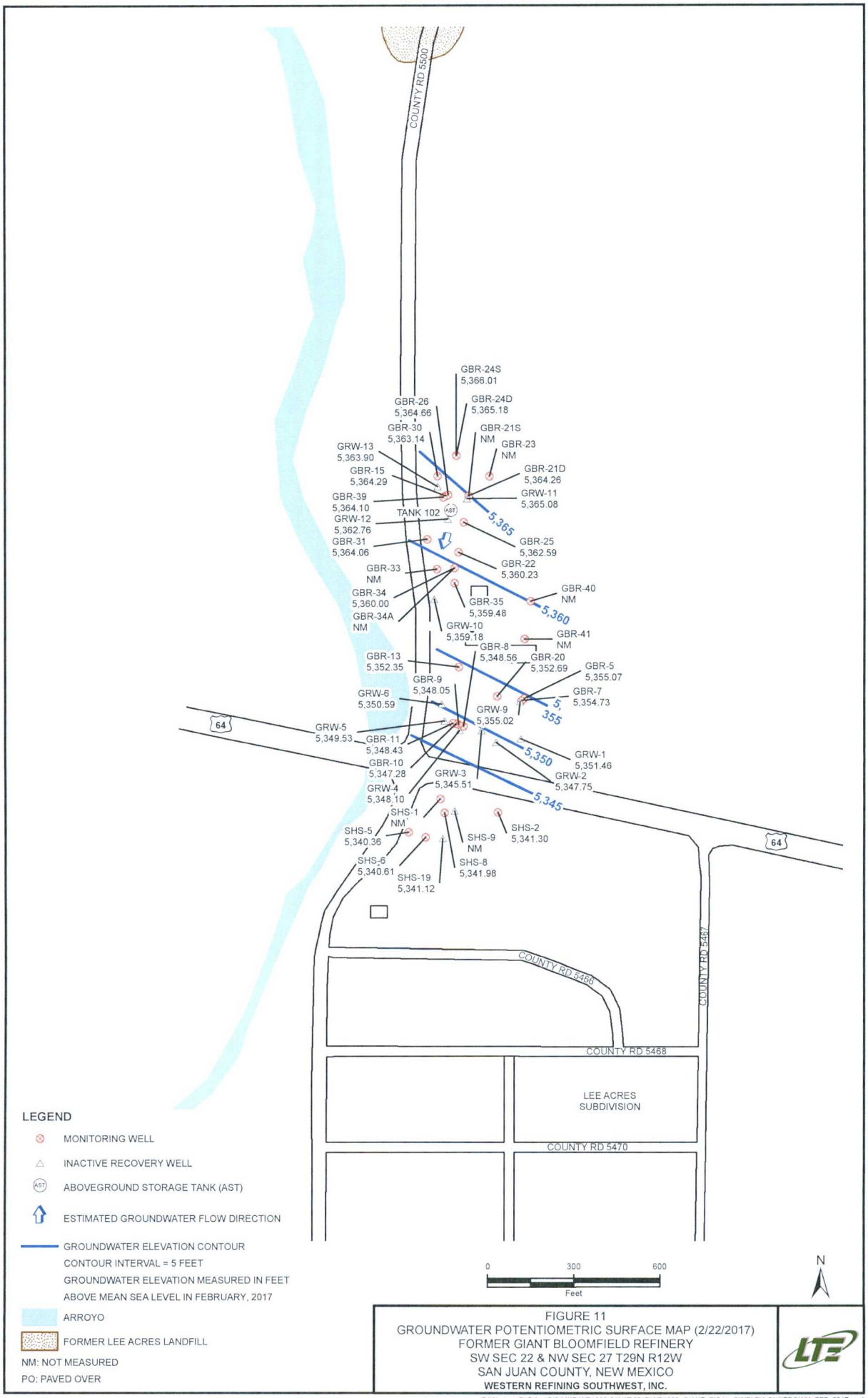


FIGURE 11
GROUNDWATER POTENTIOMETRIC SURFACE MAP (2/22/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG11_GWELEV_SHUTDOWN_FEB_2017.mxd

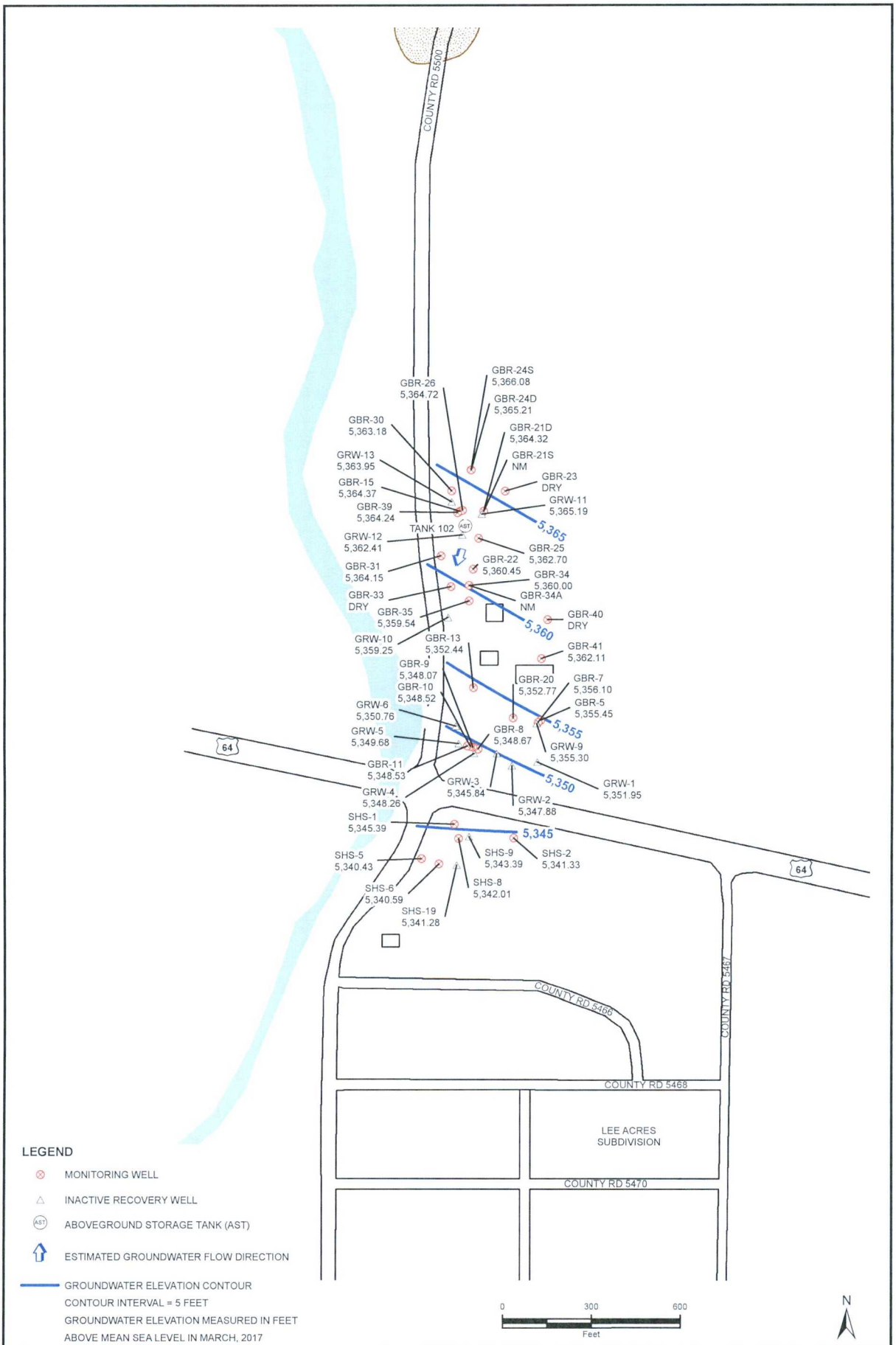


FIGURE 12
GROUNDWATER POTENTIOMETRIC SURFACE MAP (3/27/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG12_GWELEV_SHUTDOWN_MARCH_2017.mxd

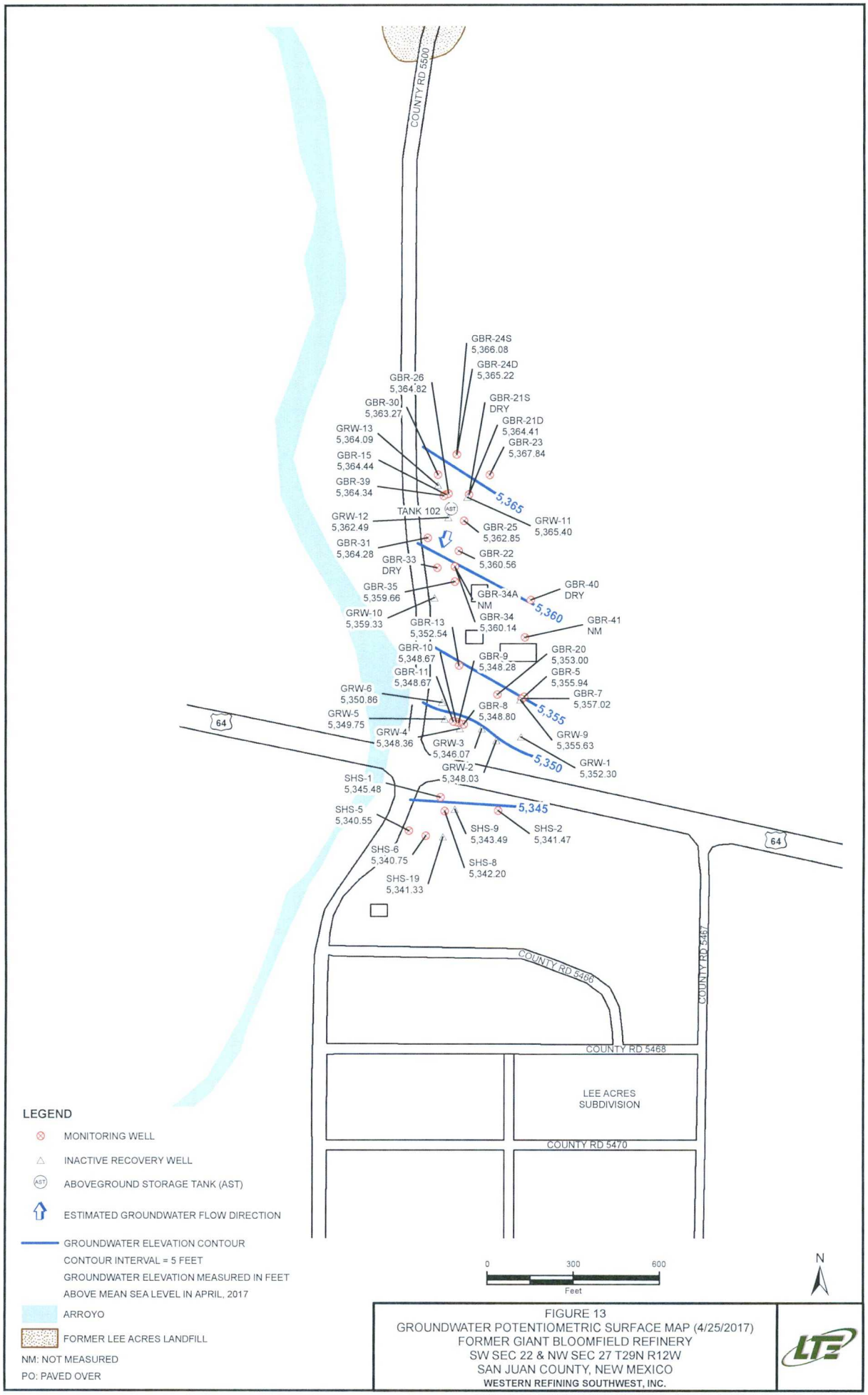


FIGURE 13
GROUNDWATER POTENTIOMETRIC SURFACE MAP (4/25/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG13_GWELEV_SHUTDOWN_APRIL_2017.mxd

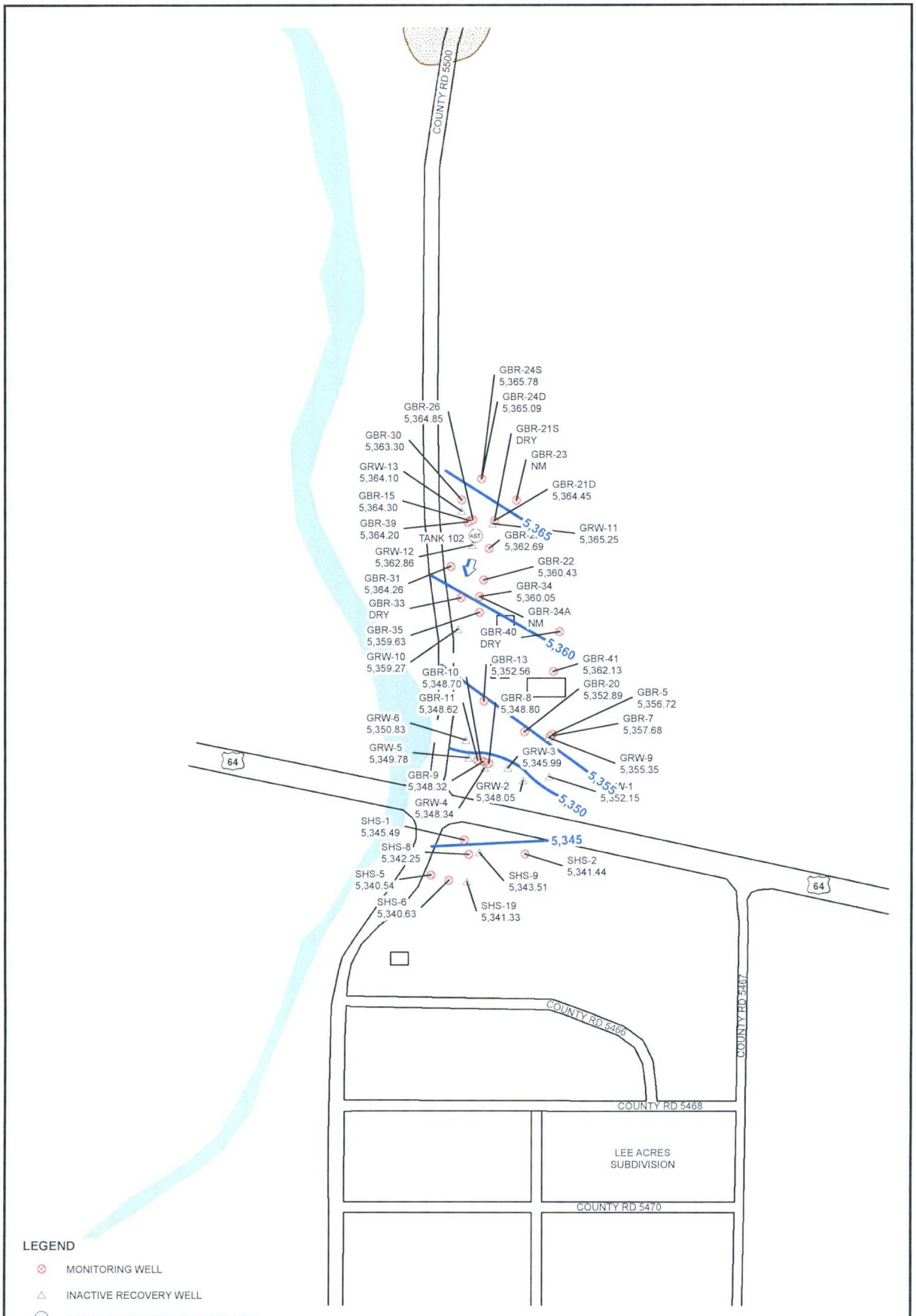


FIGURE 14
GROUNDWATER POTENTIOMETRIC SURFACE MAP (5/22/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG14_GWELEV_SHUTDOWN_MAY_2017.mxd

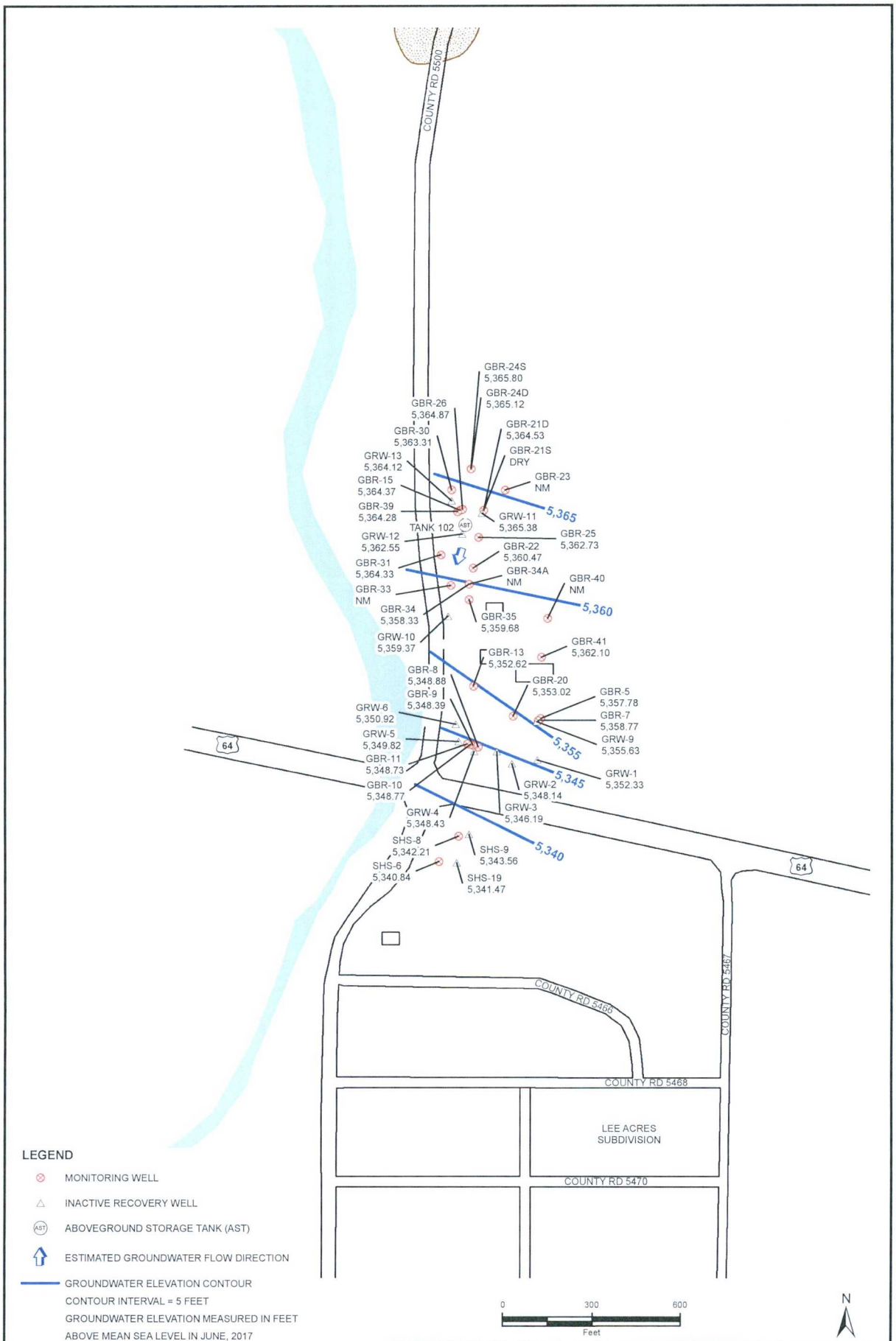


FIGURE 15
GROUNDWATER POTENTIOMETRIC SURFACE MAP (6/21/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG15_GWELEV_SHUTDOWN_JUNE_2017.mxd

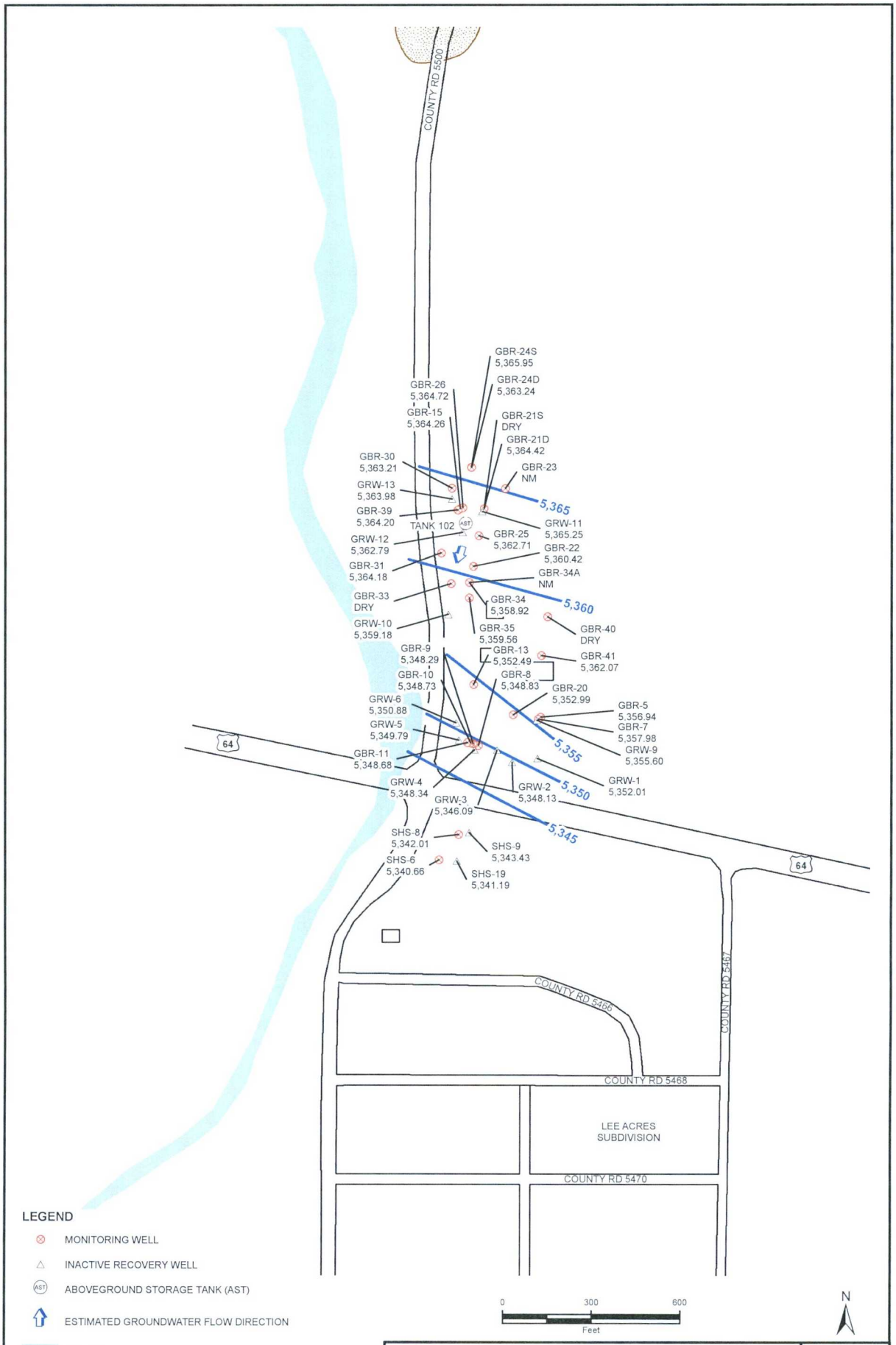


FIGURE 16
GROUNDWATER POTENTIOMETRIC SURFACE MAP (7/21/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG16_GWELEV_SHUTDOWN_JULY_2017.mxd

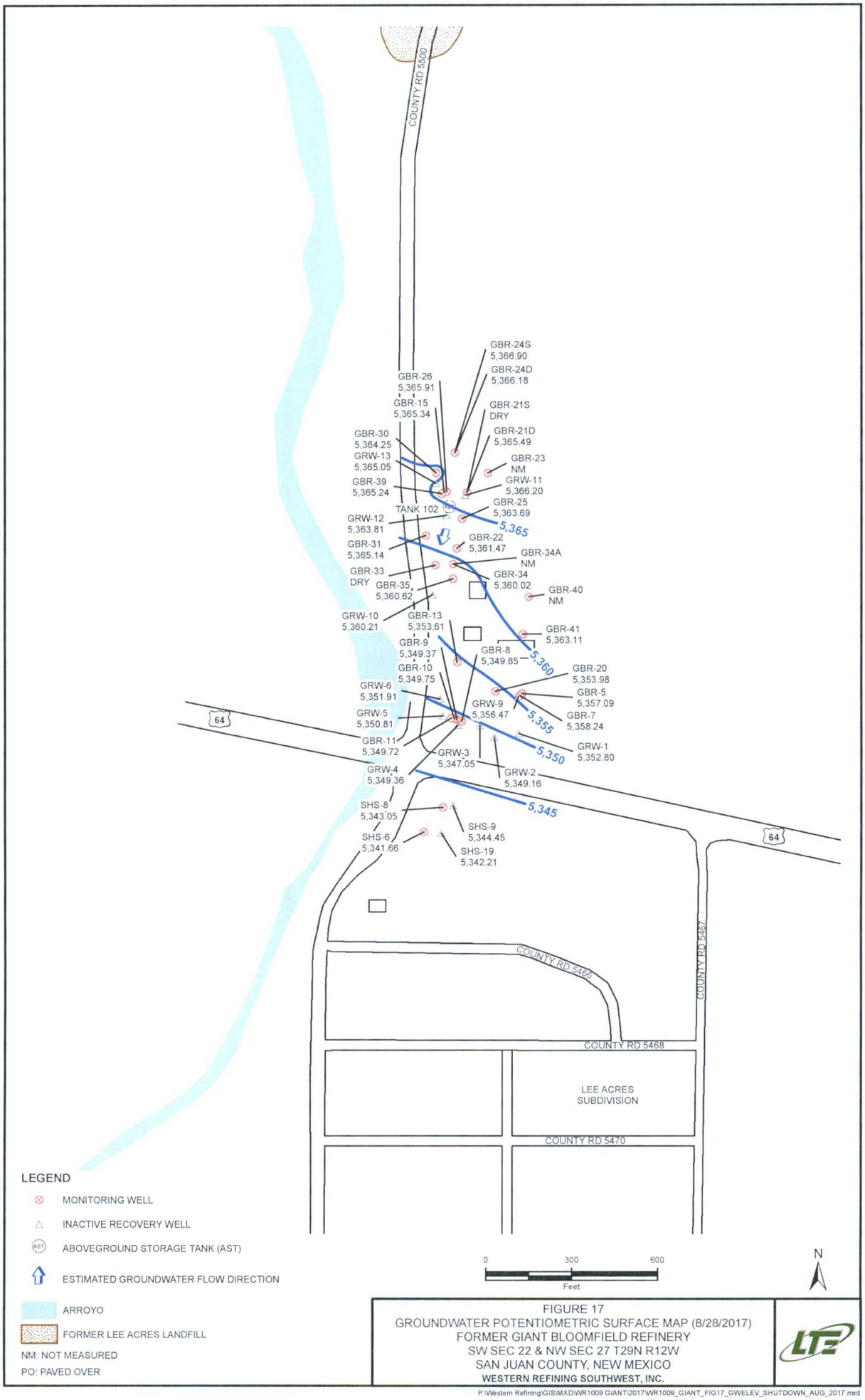


FIGURE 17
GROUNDWATER POTENTIOMETRIC SURFACE MAP (8/28/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG17_GWELEV_SHUTDOWN_AUG_2017.mxd

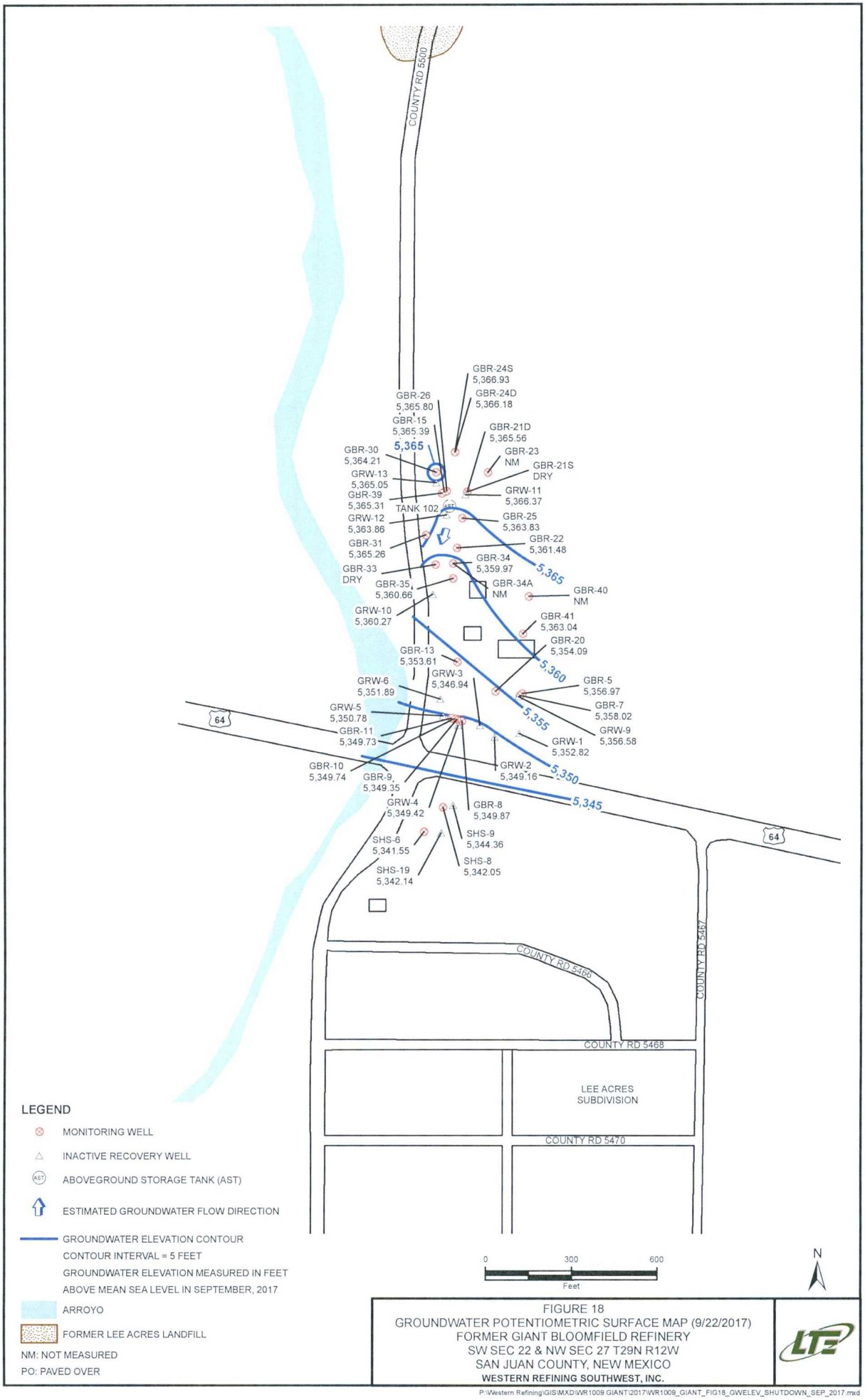


FIGURE 18
GROUNDWATER POTENTIOMETRIC SURFACE MAP (9/22/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG18_GWELEV_SHUTDOWN_SEP_2017.mxd

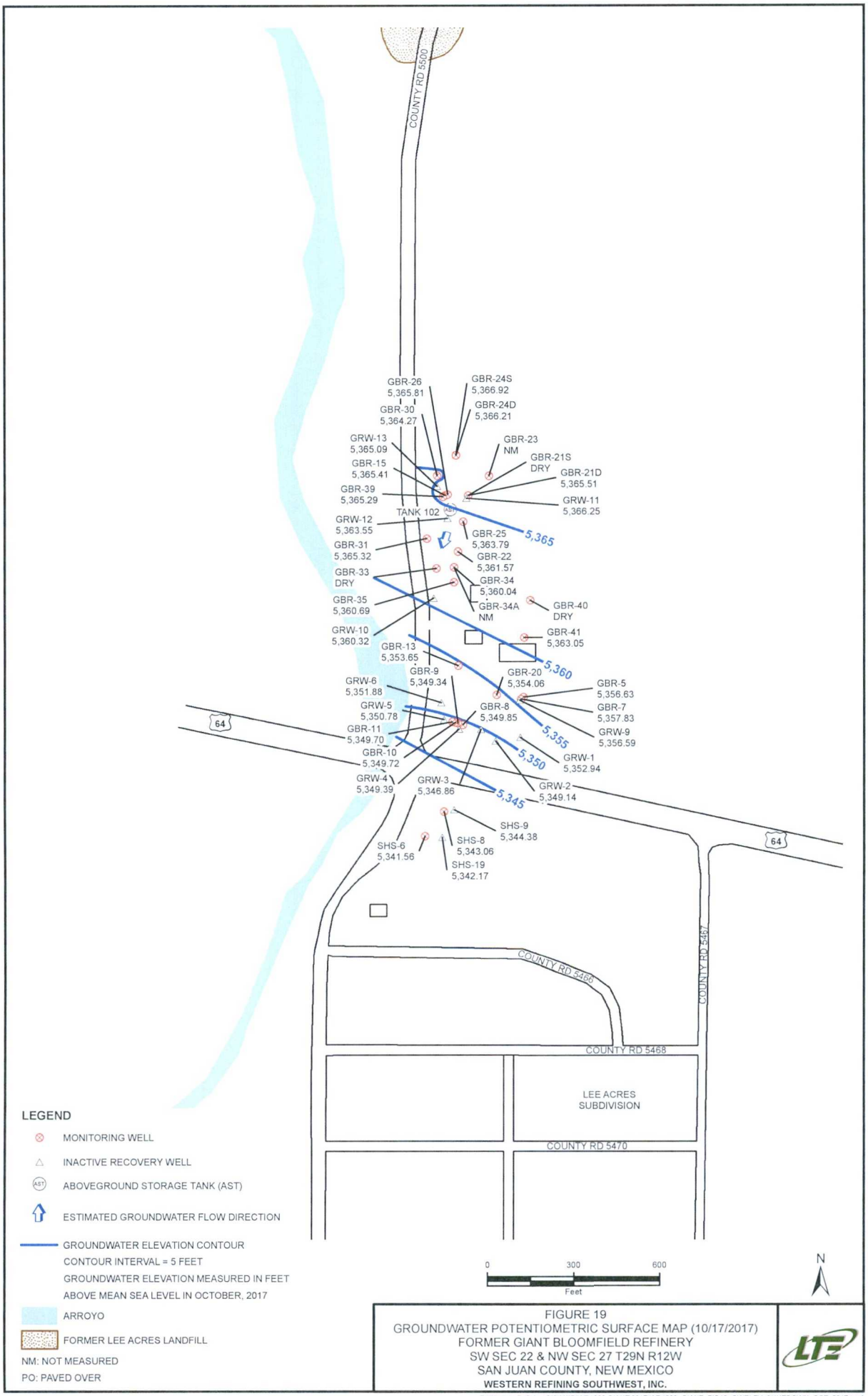


FIGURE 19
GROUNDWATER POTENTIOMETRIC SURFACE MAP (10/17/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG19_GWELEV_SHUTDOWN_OCT_2017.mxd

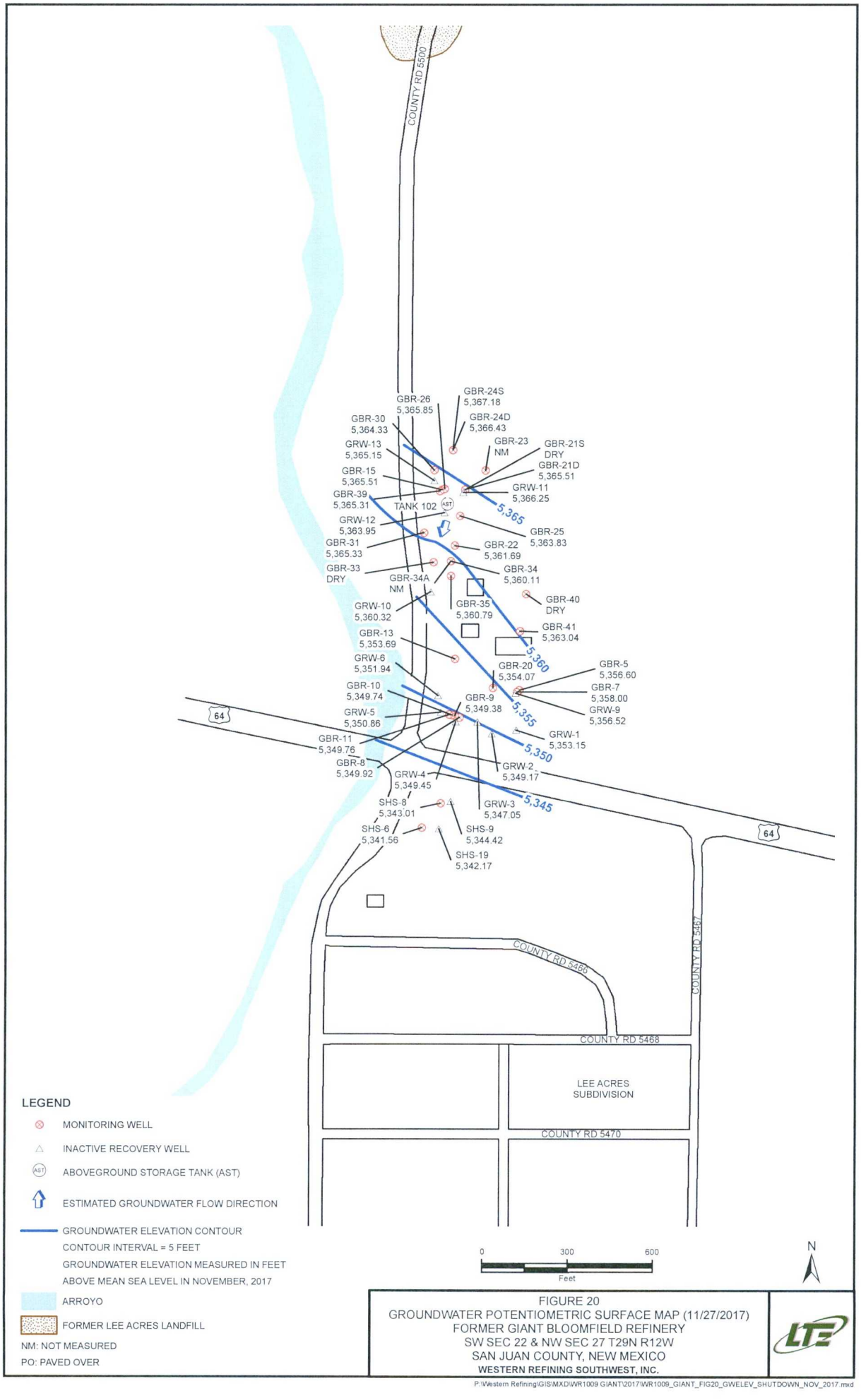


FIGURE 20
GROUNDWATER POTENTIOMETRIC SURFACE MAP (11/27/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG20_GWELEV_SHUTDOWN_NOV_2017.mxd

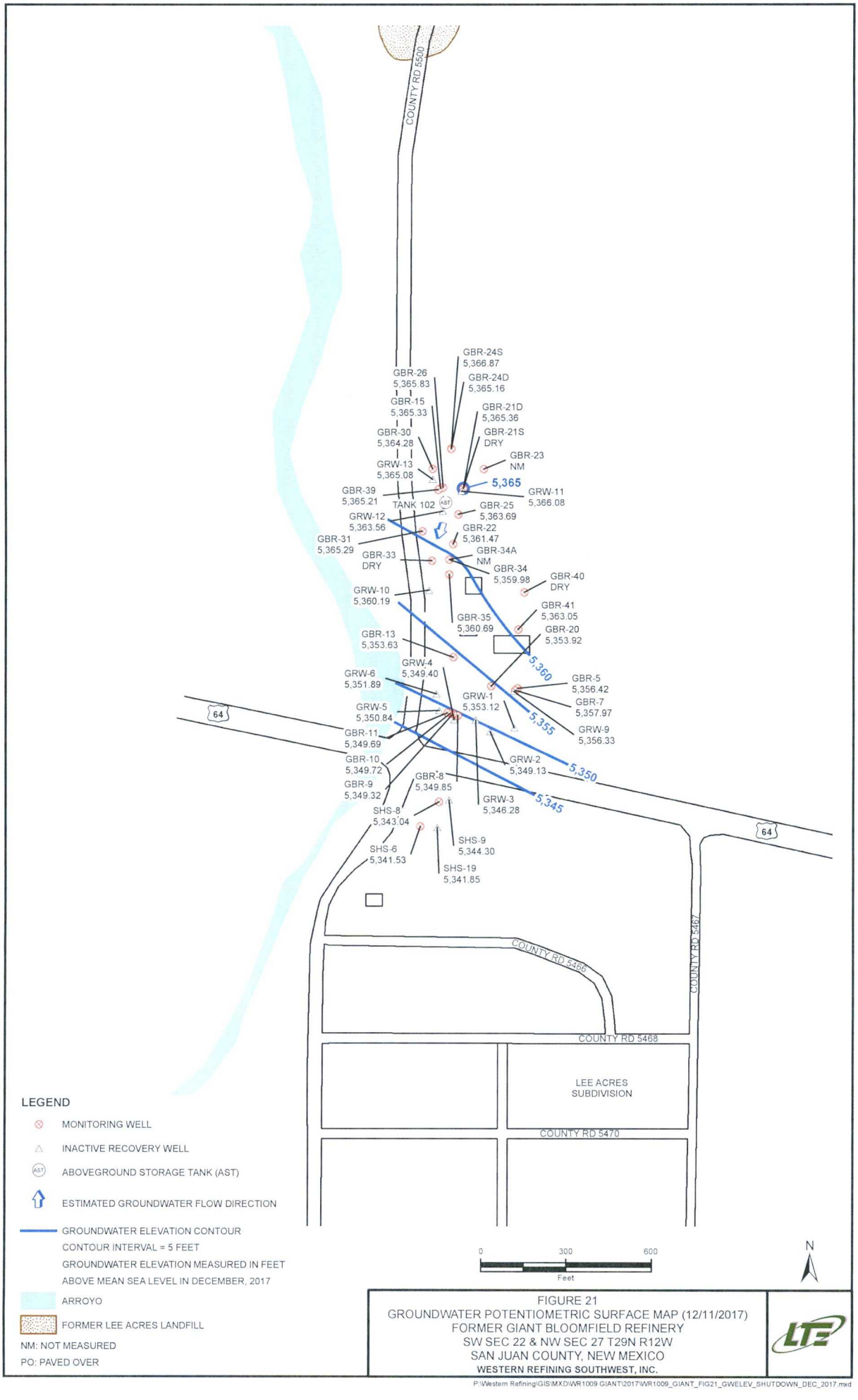


FIGURE 21
GROUNDWATER POTENTIOMETRIC SURFACE MAP (12/11/2017)
FORMER GIANT BLOOMFIELD REFINERY
SW SEC 22 & NW SEC 27 T29N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1009 GIANT\2017\WR1009_GIANT_FIG21_GWELEV_SHUTDOWN_DEC_2017.mxd

TABLE 1
GROUNDWATER ELEVATIONS AND THICKNESS OF PHASE-SEPARATED HYDROCARBONS

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

Well Number	Wellhead Elevation (feet)	Total Depth (feet)	January 2017				April 2017				July 2017				October 2017			
			Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet)	Depth to Water (feet BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet)	Depth to Water (feet) BTOC)	Depth to Product (feet)	PSH Thickness (feet)	Adjusted GWEL (feet)
GRW-1	5,394.30	73.35	43.35	-	-	5,350.95	42.13	-	-	5,352.17	42.29	-	-	5,352.01	42.36	-	-	5,351.94
GRW-2	5,391.28	61.00	43.72	-	-	5,347.56	43.28	-	-	5,348.00	43.15	-	-	5,348.13	43.14	-	-	5,348.14
GRW-3	5,388.77	58.30	43.20	-	-	5,345.57	41.80	-	-	5,346.97	42.68	-	-	5,346.09	42.91	-	-	5,345.86
GRW-4	5,390.02	60.00	43.10	-	-	5,346.92	41.71	-	-	5,348.31	41.68	-	-	5,348.34	41.63	-	-	5,348.39
GRW-5	5,390.56	68.30	42.19	-	-	5,348.37	41.85	-	-	5,348.71	41.77	-	-	5,348.79	41.78	-	-	5,348.78
GRW-6	5,390.81	53.80	41.30	-	-	5,349.51	40.99	-	-	5,349.82	40.93	-	-	5,349.88	40.93	-	-	5,349.88
GRW-9	5,395.70	54.40	40.60	-	-	5,355.10	40.24	-	-	5,355.46	40.10	-	-	5,355.60	40.11	-	-	5,355.59
GRW-10	5,395.02	66.02	34.96	-	-	5,360.06	35.76	-	-	5,359.26	35.84	-	-	5,359.18	35.70	-	-	5,359.32
GRW-11	5,397.85	64.00	32.78	-	-	5,365.07	32.59	-	-	5,365.26	32.60	-	-	5,365.25	32.60	-	-	5,365.25
GRW-12	5,397.24	48.00	35.00	-	-	5,362.24	34.79	-	-	5,362.45	34.45	-	-	5,362.79	34.69	-	-	5,362.55
GRW-13	5,396.90	61.30	33.05	-	-	5,363.85	32.86	-	-	5,364.04	32.92	-	-	5,363.98	32.81	-	-	5,364.09
GBR-5	5,395.07	47.08	39.94	-	-	5,355.13	39.19	37.18	0.01	5,355.89	38.13	-	-	5,356.94	39.44	-	-	5,355.63
GBR-7	5,395.85	51.65	41.24	41.05	0.19	5,354.97	38.95	-	-	5,356.90	37.87			5,357.98	39.02	-	-	5,356.83
GBR-8	5,390.50	50.90	42.09	-	-	5,348.41	41.74	-	-	5,348.76	41.67	-	-	5,348.83	41.65	-	-	5,348.85
GBR-9	5,389.92	67.22	41.91	-	-	5,348.01	41.66	-	-	5,348.26	41.63	-	-	5,348.29	41.58	-	-	5,348.34
GBR-10	5,390.57	47.56	44.65	-	-	5,345.92	43.07	-	-	5,347.50	41.84	-	-	5,348.73	41.85	-	-	5,348.72
GBR-11	5,389.43	51.87	41.19	-	-	5,348.24	40.82	-	-	5,348.61	40.75	-	-	5,348.68	40.73	-	-	5,348.70
GBR-13	5,393.04	45.47	40.84	-	-	5,352.20	40.54	-	-	5,352.50	40.55	-	-	5,352.49	40.39	-	-	5,352.65
GBR-15	5,397.99	58.42	33.79	-	-	5,364.20	33.69	-	-	5,364.30	33.73	-	-	5,364.26	33.58	-	-	5,364.41
GBR-17	5,402.69	43.20	34.40	-	-	5,368.29	34.02	-	-	5,368.67	34.20	-	-	5,368.49	34.00	-	-	5,368.69
GBR-18	5,421.68	47.85	36.54	-	-	5,385.14	36.42	-	-	5,385.26	36.87	-	-	5,384.81	36.87	-	-	5,384.81
GBR-19***	5,393.83	46.23	NM	-	-	-	NM	-	-	-	NM	-	-	-	NM	-	-	-
GBR-20	5,393.47	54.57	40.88	-	-	5,352.59	40.62	-	-	5,352.85	40.48	-	-	5,352.99	40.41	-	-	5,353.06
GBR-21D	5,400.19	49.77	35.93	-	-	5,364.26	36.31	-	-	5,363.88	35.77	-	-	5,364.42	35.68	-	-	5,364.51
GBR-21S	5,400.65	49.77	DRY		-	-	DRY	-	-	-	DRY	-	-	-	DRY	-	-	-
GBR-22	5,395.91	38.73	35.77	-	-	5,360.14	35.55	-	-	5,360.36	35.49	-	-	5,360.42	35.34	-	-	5,360.57
GBR-23****	-	39.45	NM	-	-	-	36.03	36.00	0.03	-	NM	-	-	-	34.02	-	-	#VALUE!
GBR-24D	5,396.77	51.40	31.38	-	-	5,365.39	30.96	-	-	5,365.81	32.84	-	-	5,363.93	30.87	-	-	5,365.90
GBR-24S	5,396.08	37.05	30.24	-	-	5,365.84	30.28	-	-	5,365.80	30.13	-	-	5,365.95	30.16	-	-	5,365.92
GBR-25	5,397.03	37.12	34.40	-	-	5,362.63	34.23	-	-	5,362.80	34.32	-	-	5,362.71	34.24	-	-	5,362.79
GBR-26	5,396.72	41.29	32.08	-	-	5,364.64	31.89	-	-	5,364.83	32.00	-	-	5,364.72	31.91	-	-	5,364.81
GBR-30	5,395.59	41.66	32.50	-	-	5,363.09	32.35	-	-	5,363.24	32.38	-	-	5,363.21	32.32	-	-	5,363.27
GBR-31	5,396.58	43.50	32.68	-	-	5,363.90	32.34	-	-	5,364.24	32.40	-	-	5,364.18	32.26	-	-	5,364.32
GBR-32	5,414.86	47.83	34.00	-	-	5,380.86	33.80	-	-	5,381.06	34.00	-	-	5,380.86	33.95	-	-	5,380.91
GBR-33	5,396.28	45.72	DRY	-	-	-	DRY	-	-	-	DRY	-	-	-	DRY	-	-	-
GBR-34	5,394.00	42.20	34.11	-	-	5,359.89	35.16	-	-	5,358.84	35.08	-	-	5,358.92	34.96			5,359.04
GBR-35	5,393.66	42.35	34.30	-	-	5,359.36	34.07	-	-	5,359.59	34.10	-	-	5,359.56	33.97	-	-	5,359.69
GBR-39	5,397.55	41.42	33.45	-	-	5,364.10	33.48	-	-	5,364.07	33.35	-	-	5,364.20	33.26	-	-	5,364.29
GBR-40	5,400.76	39.38	DRY	-	-	-	DRY	-	-	-	DRY	-	-		DRY	-	-	-
GBR-41	5,396.35	34.28	DRY	-	-	-	34.23	34.19	0.04	5,362.16	34.28	-	-	5,362.07	34.30	-	-	5,362.05
GBR-48	5,413.90	43.54	35.55	-	-	5,378.35	35.39	-	-	5,378.51	35.60	-	-	5,378.30	35.58	-	-	5,378.32
GBR-49	*	40.30	32.15	-	-	-	31.93	-	-	-	32.07	-	-	-	32.08	-	-	-
GBR-50	*	44.37	31.20	-	-	-	31.03	-	-	-	31.22	-	-	-	31.26	-	-	-
GBR-51	5,389.68	57.07	39.73	-	-	5,349.95	39.44	-	-	5,350.24	39.47	-	-	5,350.21	39.38	-	-	5,350.30
GBR-52	5,387.74	52.73	36.44	-	-	5,351.30	37.14	-	-	5,350.60	37.12	-	-	5,350.62	37.06	-	-	5,350.68
SHS-1******	5,383.54	50.40	NM	-	-	-	38.11	-	-	5,345.43	P&A	-	-	-	P&A	-	-	-
SHS-2	5,381.66	44.56	40.50	-	-	5,341.16	41.22	-	-	5,340.44	P&A	-	-	-	P&A	-	-	-
SHS-3**	5,383.33	-	NM	-	-	-	NM	-	-	-	P&A	-	-	-	P&A	-	-	-
SHS-4	5,383.62	52.16	40.80	-	-	5,342.82	40.55	-	-	5,343.07	P&A	-	-	-	P&A	-	-	-
SHS-5	5,378.36	47.85	38.13	-	-	5,340.23	37.81	-	-	5,340.55	P&A	-	-	-	P&A	-	-	-
SHS-6	5,378.17	52.78	37.90	-	-	5,340.27	37.62	-	-	5,340.55	37.70	-	-	5,340.47	37.80	-	-	5,340.37
SHS-8	5,380.25	50.92	38.45	-	-	5,341.80	38.08	-	-	5,342.17	38.24	-	-	5,342.01	38.19	-	-	5,342.06
SHS-9	5,380.79	46.25	37.60	-	-	5,343.19	37.32	-	-	5,343.47	37.36	-	-	5,343.43	37.41	-	-	5,343.38
SHS-10	5,373.80	45.80	DRY	-	-	-	DRY	-	-	-	DRY	-	-		DRY	-	-	-
SHS-12	5,373.94	52.41	DRY	-	-	-	38.72	-	-	5,335.22	38.87	-	-	5,335.07	DRY	-	-	-
SHS-13	5,367.81	47.51	35.77	-	-	5,332.04	35.30	-	-	5,332.51	35.53	-	-	5,332.28	35.86	-	-	5,331.95
SHS-14	5,367.07	52.71	34.10	-	-	5,332.97	33.53	-	-	5,333.54	33.77	-	-	5,333.30	34.24	-	-	5,332.83
SHS-15*****	5,366.21	47.78	NM	-	-	-	32.32	-	-	5,333.89	32.65	-	-	5,333.56	33.15	-	-	5,333.06
SHS-16	5,362.58	42.20	30.63	-	-	5,331.95	30.13	-	-	5,332.45	30.38	-	-	5,332.20	30.80	-	-	5,331.78
SHS-17	5,364.35	46.21	32.52	-	-	5,331.83	32.07	-	-	5,332.28	32.35	-	-	5,332.00	32.67	-	-	5,331.68
SHS-18	5,373.64	47.36	DRY	-	-	-	38.77	-	-	5,334.87	39.00	-	-	5,334.64	39.32	-	-	5,334.32
SHS-19	5,378.89	52.40	37.88	-	-	5,341.01	37.57	-	-	5,341.32	37.70	-	-	5,341.19	37.72	-	-	5,341.17

Notes:
BTOC - below top of casing
D - designates that the well screen is deep
GWEL - groundwater elevation
P&A - plugged and abandoned
PSH - phase-separated hydrocarbon
S - designates that the well screen is shallow
* Top-of-casing elevation is unknown
** Well is damaged by a tree root
*** Well was paved over in June 2010
**** Well hit by a vehicle May 2014
***** Well visibly broken/buried January 2016
****** Well buried and unable to locate May 2016
- indicates no GWEL or PSH measured
When PSH is detected, the GWEL is corrected using an estimated density correction factor of 0.88.

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2017 ANNUAL COMPLIANCE - GROUNDWATER LABORATORY ANALYTICAL RESULTS

FORMER GIANT BLOOMFIELD REFINERY
SAN JUAN COUNTRY, NEW MEXICO
WESTERN REFINING PIPELINE, LLC.

Analyte	NMWQCC Standard	Unit	GRW-3 8-Dec	GRW-6 7-Dec	GBR-17 8-Dec	GBR-24D 7-Dec	GBR-30 12-Dec	GBR-31 8-Dec	GBR-32 7-Dec	GBR-48 7-Dec	GBR-49 7-Dec	GBR-50 7-Dec	GBR-51 7-Dec	GBR-52 7-Dec	SHS-8 7-Dec
USEPA Method 8260B - Volatiles															
benzene	10	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
toluene	750	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
ethylbenzene	750	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
methyl tert-butyl ether (MTBE)	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trimethylbenzene	620	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3,5-trimethylbenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloroethane (EDC)	10	µg/L	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane (EDB)	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
naphthalene	NE	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1-methylnaphthalene	NE	µg/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
2-methylnaphthalene	NE	µg/L	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
acetone	NE	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
bromobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
bromodichloromethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
bromoform	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
bromomethane	NE	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
2-butanone	NE	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
carbon disulfide	NE	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
carbon tetrachloride	10	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
chlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
chloroethane	NE	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
chloroform	100	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
chloromethane	NE	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
2-chlorotoluene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4-chlorotoluene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,2-DCE	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
cis-1,3-dichloropropene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromo-3-chloropropane	NE	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
dibromochloromethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
dibromomethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-dichlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
dichlorodifluoromethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethane	25	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-dichloroethene	5	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dichloropropane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-dichloropropane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,2-dichloropropane	NE	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
1,1-dichloropropene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
hexachlorobutadiene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-hexanone	NE	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1.0
isopropylbenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4-isopropyltoluene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4-methyl-2-pentanone	NE	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
methylene chloride	100	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
n-butylbenzene	NE	µg/L	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
n-propylbenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
sec-butylbenzene	NE	µg/L	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
styrene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
tert-butylbenzene	NE	µg/L	3.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1,2-tetrachloroethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-tetrachloroethane	10	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
tetrachloroethene (PCE)	20	µg/L	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	1.1	1.3	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-DCE	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,4-trichlorobenzene	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane	60	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-trichloroethane	10	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trichloroethene (TCE)	100	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trichlorofluoromethane	NE	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2,3-trichloropropane	NE	µg/L	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
vinyl chloride	1	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
xylenes, total	620	µg/L	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5

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FORMER GIANT BLOOMFIELD REFINERY
SAN JUAN COUNTRY, NEW MEXICO
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Analyte	NMWQCC Standard	Unit	GRW-3 8-Dec	GRW-6 7-Dec	GBR-17 8-Dec	GBR-24D 7-Dec	GBR-30 12-Dec	GBR-31 8-Dec	GBR-32 7-Dec	GBR-48 7-Dec	GBR-49 7-Dec	GBR-50 7-Dec	GBR-51 7-Dec	GBR-52 7-Dec	SHS-8 7-Dec
USEPA Method 8270C: Polycylic Aromatic Hydrocarbons															
naphthalene	30	µg/L	0.96	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
1-methylnaphthalene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
2-methylnaphthalene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
acenaphthylene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
acenaphthene	NE	µg/L	0.82	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
fluorene	NE	µg/L	3.9	<0.50	<1.0	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
phenanthrene	NE	µg/L	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
anthracene	NE	µg/L	<0.50	<0.50	<1.0	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
fluoranthene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
pyrene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
benz(a)anthracene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
chrysene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
benzo(b)fluoranthene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
benzo(k)fluoranthene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
benzo(a)pyrene	0.7	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
dibenz(a,h)anthracene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
benzo(g,h,i)perylene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
indeno(1,2,3-cd)pyrene	NE	µg/L	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	NT	NT	NT	NT	NT	NT	NT
USEPA Method 300.0: Anions															
bromide	NE	mg/L	0.38	0.77	0.21	0.79	0.83	0.41	0.87	1.4	0.50	0.24	0.25	0.33	0.78
chloride	250	mg/L	74	120	50	140	220	93	**290**	**350**	150	54	51	54	110
sulfate	600	mg/L	**1,400**	**1,200**	**1,000**	**1,800**	**1,300**	**1,700**	**1,600**	**1,900**	**1,300**	**1,500**	**1,200**	**1,500**	**1,200**
fluoride	1.6	mg/L	<0.10	1.5	0.57	1.5	0.86	0.34	0.18	0.19	0.37	0.48	0.65	0.53	0.37
nitrate + nitrite as N	NE	mg/L	<1.0	<0.10	3.8	<0.10	5.1	3.4	1.2	3.0	0.59	5.9	7.6	7.2	<1.0
phosphorus, orthophosphate (As P)	NE	mg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
USEPA Method 200.7: Total Metals															
barium	NE	mg/L	NT	NT	NT	NT	NT	NT	0.025	0.28	0.015	0.036	NT	NT	NT
beryllium	NE	mg/L	NT	NT	NT	NT	NT	NT	<0.0020	0.0028	<0.0020	<0.0020	NT	NT	NT
cadmium	0.01	mg/L	NT	NT	NT	NT	NT	NT	<0.0020	<0.0020	<0.0020	<0.0020	NT	NT	NT
calcium	NE	mg/L	320	340	370	440	400	430	510	550	390	440	420	460	320
chromium	0.05	mg/L	NT	NT	NT	NT	NT	NT	**0.13**	**0.13**	0.018	**0.16**	NT	NT	NT
iron	1.0	mg/L	**54**	**40**	**9.3**	**11**	**38**	**21**	**2.3**	**40**	0.44	**5.8**	0.080	0.048	**10**
magnesium	NE	mg/L	62	54	30	39	38	40	49	55	32	33	29	33	49
manganese	0.2	mg/L	**1.9**	**9.1**	**0.25**	**1.8**	**1.4**	**4.2**	**1.2**	**1.7**	**0.30**	**0.32**	<0.020	<0.0020	**3.6**
nickel	0.2	mg/L	NT	NT	NT	NT	NT	NT	0.14	0.10	0.056	0.083	NT	NT	NT
potassium	NE	mg/L	1.3	2.1	2.0	7.9	6.2	6.0	2.6	8.9	1.3	2.4	<1.0	1.1	2.1
silver	0.05	mg/L	NT	NT	NT	NT	NT	NT	0.0070	<0.0050	0.0057	0.0057	NT	NT	NT
sodium	NE	mg/L	520	390	260	420	380	430	560	620	430	320	300	300	520
zinc	10	mg/L	NT	NT	NT	NT	NT	NT	0.012	0.081	<0.010	0.020	NT	NT	NT
USEPA Method 200.8: Total Metals															
antimony	NE	mg/L	NT	NT	NT	NT	NT	NT	<0.0010	<0.0010	<0.0010	<0.0010	NT	NT	NT
arsenic	0.1	mg/L	NT	NT	NT	NT	NT	NT	<0.0050	0.0080	<0.0010	0.0057	NT	NT	NT
copper	1.0	mg/L	NT	NT	NT	NT	NT	NT	0.0062	0.040	0.0023	0.0082	NT	NT	NT
lead	0.05	mg/L	NT	NT	NT	NT	NT	NT	0.00082	0.022	<0.00050	0.0024	NT	NT	NT
selenium	0.05	mg/L	NT	NT	NT	NT	NT	NT	0.0055	0.018	0.0027	0.0085	NT	NT	NT
thallium	NE	mg/L	NT	NT	NT	NT	NT	NT	<0.00050	<0.00050	<0.00050	<0.00050	NT	NT	NT
USEPA Method 245.1: Mercury															
mercury	0.002	mg/L	NT	NT	NT	NT	NT	NT	<0.00020	<0.00020	<0.00020	<0.00020	NT	NT	NT
SM 2340B: Hardness															
hardness (as CaCO3)	NE	mg/L	1,100	1,100	1,000	1,200	1,200	1,200	1,500	1,600	1,100	1,200	1,200	1,300	1000
USEPA Method SM 2320B:															
alkalinity, total (As CaCO3)	NE	mg/L CaCO3	761.1	388.3	220.8	243.2	222.5	239.1	294.1	297.4	274.8	208.0	208.3	218.4	751.8
carbonate	NE	mg/L CaCO3	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000	<2.000
bicarbonate	NE	mg/L CaCO3	761.1	388.3	220.8	243.2	222.5	239.1	294.1	297.4	274.8	208.0	208.3	218.4	751.8
USEPA Method 120.1:															
specific conductance	NE	µmhos/cm	3,600	3,000	2,600	4,000	3,200	3,400	4,000	4,600	3,400	3,100	2,700	3,100	3,500
USEPA Method SM4500-H+B: pH															
pH	6-9	pH units	7.32	7.65	7.90	7.90	7.47	7.34	7.84	7.84	7.86	7.81	7.65	7.86	7.22
USEPA Method SM2540C Modified: Total Dissolved Solids															
total dissolved solids	1,000	mg/L	**2,920**	**2,570**	**2,110**	**3,560**	**2,770**	**2,940**	**3,210**	**3,690**	**2,720**	**2,590**	**2,250**	**2,640**	**2,730**

Notes:
µg/L - micrograms per liter
BOLD - indicates concentration exceeds the NMWQCC standard
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
NT - not tested
USEPA - United States Environmental Protection Agency

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-5	1/25/2017	5,395.07	5,355.07	40.00	--	--	No	Yes	179.8	Clear, Product droplets observed
	2/22/2017	5,395.07	5,355.07	40.00	--	--	No	No	134.1	Clear
	3/27/2017	5,395.07	5,355.45	39.62	--	--	No	No	95.8	Clear no odor
	4/25/2017	5,395.07	5,355.94	39.13	--	--	Yes	Yes	290	Clear
	5/22/2017	5,395.07	5,356.72	38.35	--	--	No	Yes	0.3	light grey, HC odor
	6/21/2017	5,395.07	5,357.78	37.29	--	--	Yes	Yes	1.6	Clear, Orange and black flakes present
	7/21/2017	5,395.07	5,356.94	38.13			No	No	1.8	Clear
	8/28/2017	5,395.07	5,356.09	38.98	--	--	No	No	22.1	Clear
	9/22/2017	5,395.07	5,355.97	39.10	--	--	No	No	0.0	Clear
	10/27/2017	5,395.07	5,355.63	39.44	--	--	Slight	Yes	10.3	Clear with gray flakes.
	11/27/2017	5,395.07	5,355.60	39.47	--	--	No	No	775	Clear
	12/11/2017	5,395.07	5,355.42	39.65	--	--	Slight	Yes	793	Clear, small white flakes

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-7	1/25/2017	5,395.85	5,354.65	41.20	**41.00**	**0.20**	Yes	Yes	68.6	black on top with golden brown below (two distinct layers) Product observed
	2/22/2017	5,395.85	5,354.73	41.12	**40.95**	**0.17**	Yes	Yes	362.5	black on top with golden brown below (two distinct layers) Product observed
	3/27/2017	5,395.85	5,356.10	39.75	**39.66**	**0.09**	Yes	Yes	266.6	black on top with golden brown below (two distinct layers) Product observed
	4/25/2017	5,395.85	5,357.02	38.83	--	--	Yes	Yes	131.0	Clear with product droplets present
	5/22/2017	5,395.85	5,357.68	38.17	--	--	No	Yes	4.0	Clear, HC odor
	6/21/2017	5,395.85	5,358.77	37.08	--	--	Yes	Yes	42.1	Clear, slight brown tint
	7/21/2017	5,395.85	5,357.98	37.87	--	--	Yes	Yes	98.6	Clear with HC odor, 1/16th in of golden brown product on top
	8/28/2017	5,395.85	5,357.24	38.61	--	--	Yes	Yes	2.0	Clear with HC odor
	9/22/2017	5,395.85	5,357.02	38.83	**38.78**	**0.05**	Yes	Yes	36.2	orange/golden brown product on top of Clear water, HC odor
	10/27/2017	5,395.85	5,356.83	39.02	**38.98**	**0.04**	Yes	Yes	312	Clear gray with orange product on surface
	11/27/2017	5,395.85	5,357.00	38.85	--	--	Yes	Yes	369	Clear, PSH drops observered, HC odor
	12/11/2017	5,395.85	5,356.97	38.88	--	--	Yes	Yes	381	Clear, Small yellow droplets observered

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-8	1/25/2017	5,390.50	5,348.50	42.00	--	--	No	No	0.0	light grey cloudy
	2/22/2017	5,390.50	5,348.56	41.94	--	--	No	No	49.3	light grey cloudy
	3/27/2017	5,390.50	5,348.67	41.83	--	--	No	Yes	14.0	light grey, degraded HC odor
	4/25/2017	5,390.50	5,348.80	41.70	--	--	Yes	Yes	0.0	Clear with sulfur smell
	5/22/2017	5,390.50	5,348.80	41.70	--	--	No	Yes	3.4	Clear with sulfur smell
	6/21/2017	5,390.50	5,348.88	41.62	--	--	Yes	Yes	0.0	Cloudy grey/black with flakes
	7/21/2017	5,390.50	5,348.83	41.67	--	--	Yes	Yes	0.7	grey, PSH observed
	8/28/2017	5,390.50	5,348.85	41.65	--	--	Yes	Yes	0.8	cloudy grey/yellow with HC odor
	9/22/2017	5,390.50	5,348.87	41.63	--	--	Yes	Yes	0.2	light grey with black flakes, sulfur smell
	10/27/2017	5,390.50	5,348.85	41.65	--	--	Yes	Yes	0.0	Clear/black. Heavy oder (sulfur) and sheen
	11/27/2017	5,390.50	5,348.92	41.58	--	--	No	Yes	30.6	light grey, sulfur odor
	12/11/2017	5,390.50	5,348.85	41.65	--	--	Yes	Yes	39.7	Clear/black, heavy sheen, sulfur odor

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-9	1/25/2017	5,389.92	5,347.90	42.02	--	--	No	No	0.0	Clear
	2/22/2017	5,389.92	5,348.05	41.87	--	--	No	No	0.0	Clear
	3/27/2017	5,389.92	5,348.07	41.85	--	--	No	No	0.0	Clear
	4/25/2017	5,389.92	5,348.28	41.64	--	--	No	Slight	0.0	Clear
	5/22/2017	5,389.92	5,348.32	41.60	--	--	No	No	0.0	Clear
	6/21/2017	5,389.92	5,348.39	41.53	--	--	No	Slight	0.0	Clear, slight grey tint
	7/21/2017	5,389.92	5,348.29	41.63	--	--	No	No	0.0	Clear
	8/28/2017	5,389.92	5,348.37	41.55	--	--	No	No	0.0	Clear
	9/22/2017	5,389.92	5,348.35	41.57	--	--	No	No	0.0	Clear
	10/27/2017	5,389.92	5,348.34	41.58	--	--	No	No	0.0	Clear
	11/27/2017	5,389.92	5,348.38	41.54	--	--	No	No	0.0	Clear
	12/11/2017	5,389.92	5,348.32	41.60	--	--	No	No	0.0	Clear, sulfur smell, small black flakes

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-10	1/25/2017	5,390.57	5,346.16	44.41	--	--	No	No	0.0	Clear
	2/22/2017	5,390.57	5,347.28	43.29	--	--	No	No	0.0	Clear
	3/27/2017	5,390.57	5,348.52	42.05	--	--	No	No	0.0	Clear
	4/25/2017	5,390.57	5,348.67	41.90	--	--	No	No	0.0	Clear
	5/22/2017	5,390.57	5,348.70	41.87	--	--	No	No	0.0	Clear
	6/21/2017	5,390.57	5,348.77	41.80	--	--	No	No	0.0	Clear, small black flakes
	7/21/2017	5,390.57	5,348.73	41.84	--	--	No	No	0.0	Clear
	8/28/2017	5,390.57	5,348.75	41.82	--	--	No	No	0.0	Clear
	9/22/2017	5,390.57	5,348.74	41.83	--	--	No	No	0.0	Clear
	10/27/2017	5,390.57	5,348.72	41.85	--	--	No	No	0.0	Clear, small black flakes
	11/27/2017	5,390.57	5,348.74	41.83	--	--	No	No	0.0	Clear
	12/11/2017	5,390.57	5,348.72	41.85	--	--	No	No	0.0	Clear, Invertebrate larva

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-11	1/25/2017	5,389.43	5,348.31	41.12	--	--	No	No	0.0	Clear
	2/22/2017	5,389.43	5,348.43	41.00	--	--	No	No	0.6	light grey/black
	3/27/2017	5,389.43	5,348.53	40.90	--	--	No	No	1.6	light brown
	4/25/2017	5,389.43	5,348.67	40.76	--	--	No	Yes	0.0	Clear, Orange flakes present
	5/22/2017	5,389.43	5,348.62	40.81	--	--	No	No	0.0	Clear
	6/21/2017	5,389.43	5,348.73	40.70	--	--	Yes	Yes	0.0	Clear with small black and orange flakes
	7/21/2017	5,389.43	5,348.68	40.75	--	--	No	No	0.8	light grey
	8/28/2017	5,389.43	5,348.72	40.71	--	--	No	No	0.0	light grey
	9/22/2017	5,389.43	5,348.73	40.70	--	--	No	No	0.0	Clear
	10/27/2017	5,389.43	5,348.70	40.73	--	--	Slight	Slight	0.0	Clear/black, small black flakes
	11/27/2017	5,389.43	5,348.76	40.67	--	--	No	No	0.0	Clear
	12/11/2017	5,389.43	5,348.69	40.74	--	--	No	No	0.0	Clear, small orange flakes, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-13	1/25/2017	5,393.04	5,352.14	40.90	--	--	No	No	0.0	Clear
	2/22/2017	5,393.04	5,352.35	40.69	--	--	No	No	0.0	Clear, slight brown hue
	3/27/2017	5,393.04	5,352.44	40.60	--	--	No	No	0.0	light brown
	4/25/2017	5,393.04	5,352.54	40.50	--	--	No	No	0.0	Clear
	5/22/2017	5,393.04	5,352.56	40.48	--	--	No	No	0.0	Clear
	6/21/2017	5,393.04	5,352.62	40.42	--	--	No	No	0.0	Clear, slight brown hue
	7/21/2017	5,393.04	5,352.49	40.55	--	--	No	No	0.0	Clear
	8/28/2017	5,393.04	5,352.61	40.43	--	--	No	No	0.0	Clear
	9/22/2017	5,393.04	5,352.61	40.43	--	--	No	No	0.0	Clear
	10/27/2017	5,393.04	5,352.65	40.39	--	--	No	No	0.0	Clear, small black flakes
	11/27/2017	5,393.04	5,352.69	40.35	--	--	No	No	0.0	Clear, small black flakes
	12/11/2017	5,393.04	5,352.63	40.41	--	--	No	No	0.0	Clear, sandy, sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-15	1/25/2017	5,397.99	5,364.04	33.95	--	--	No	No	0.0	Clear
	2/22/2017	5,397.99	5,364.29	33.70	--	--	No	No	0.0	Clear
	3/27/2017	5,397.99	5,364.37	33.62	--	--	No	No	0.0	Clear
	4/25/2017	5,397.99	5,364.44	33.55	--	--	No	No	0.0	Clear
	5/22/2017	5,397.99	5,364.30	33.69	--	--	No	No	0.0	Clear
	6/21/2017	5,397.99	5,364.37	33.62	--	--	No	No	0.0	Clear
	7/21/2017	5,397.99	5,364.26	33.73	--	--	No	No	0.0	Clear
	8/28/2017	5,397.99	5,364.34	33.65	--	--	No	No	0.0	Clear
	9/22/2017	5,397.99	5,364.39	33.60	--	--	No	No	0.0	Clear
	10/27/2017	5,397.99	5,364.41	33.58	--	--	No	No	0.0	Clear, plant matter present
	11/27/2017	5,397.99	5,364.51	33.48	--	--	No	No	0.0	Clear
	12/11/2017	5,397.99	5,364.33	33.66	--	--	No	No	0.0	Clear

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-20	1/25/2017	5,393.47	5,352.47	41.00	--	--	No	Yes	232.7	Clear, PSH Observed
	2/22/2017	5,393.47	5,352.69	40.78	--	--	No	Yes	184.1	Clear
	3/27/2017	5,393.47	5,352.77	40.70	--	--	yes	Yes	399.0	black, PSH observered degraded HC odor, TD=44.60, attempt fish recovered nothing
	4/25/2017	5,393.47	5,353.00	40.47	--	--	yes	Yes	152.0	Clear with dark hue present, Sulfer smell
	5/22/2017	5,393.47	5,352.89	40.58	--	--	yes	Yes	106.0	Clear, HC odor
	6/21/2017	5,393.47	5,353.02	40.45	--	--	yes	Yes	154	Clear with slight grey tinge, small black flakes, sulfer smell
	7/21/2017	5,393.47	5,352.99	40.48	--	--	yes	Yes	173.8	Clear, HC odor
	8/28/2017	5,393.47	5,352.98	40.49	--	--	yes	Yes	185.4	Clear, HC odor
	9/22/2017	5,393.47	5,353.09	40.38	--	--	No	No	125.0	Clear, sulfur smell
	10/27/2017	5,393.47	5,353.06	40.41	--	--	No	No	322	Clear, sulfur smell
	11/27/2017	5,393.47	5,353.07	40.40	--	--	No	Yes	296	Clear, sulfur smell
	12/11/2017	5,393.47	5,352.92	40.55	--	--	Slight	Yes	242	Clear, strong sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-21S	1/25/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	2/22/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	3/27/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	4/25/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	5/22/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	6/21/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	7/21/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	8/28/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	9/22/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.90
	10/27/2017	5,400.65	Dry	Dry	--	--	NM	NM	1.6	Dry at 34.87
	11/27/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.88
	12/11/2017	5,400.65	Dry	Dry	--	--	NM	NM	0.0	Dry at 34.92

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-21D	1/25/2017	5,400.19	5,364.22	35.97	--	--	No	No	0.0	Clear
	2/22/2017	5,400.19	5,364.26	35.93	--	--	No	Yes	11.4	light brown
	3/27/2017	5,400.19	5,364.32	35.87	--	--	No	No	0.0	Clear
	4/25/2017	5,400.19	5,364.41	35.78	--	--	No	No	0.0	Clear
	5/22/2017	5,400.19	5,364.45	35.74	--	--	No	No	0.0	Clear
	6/21/2017	5,400.19	5,364.53	35.66	--	--	No	Yes	0.6	Clear with large white stringy chunks
	7/21/2017	5,400.19	5,364.42	35.77	--	--	No	Yes	0.0	Clear
	8/28/2017	5,400.19	5,364.49	35.70	--	--	No	Yes	0.0	Clear with slight HC odor
	9/22/2017	5,400.19	5,364.56	35.63	--	--	Yes	Yes	0.8	Clear, brown PSH observered
	10/27/2017	5,400.19	5,364.51	35.68	--	--	No	No	1.4	Clear, White chunks present, Sulfur smell
	11/27/2017	5,400.19	5,364.51	35.68	--	--	No	Yes	0.0	Clear, White and black chunks present, Sulfur smell
	12/11/2017	5,400.19	5,364.36	35.83	--	--	No	Yes	0.0	Clear, Sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-22	1/25/2017	5395.91	5,360.12	35.79	--	-	Yes	Yes	0.0	Light brown, PSH observed
	2/22/2017	5395.91	5,360.23	35.68	--	-	Yes	Yes	1.3	Light brown, PSH observed
	3/27/2017	5395.91	5,360.45	35.46	--	-	Yes	Yes	0.0	Golden brown, PSH observed, HC odor
	4/25/2017	5395.91	5,360.56	35.35	--	-	Yes	Yes	0.0	Clear, Orange product droplets present
	5/22/2017	5395.91	5,360.43	35.48	--	-	Yes	Yes	0.0	light brown, PSH observed
	6/21/2017	5395.91	5,360.47	35.44	--	-	Yes	Yes	0.0	Clear light brown, small black flakes
	7/21/2017	5395.91	5,360.42	35.49	--	-	Yes	Yes	0.0	grey, PSH observed, HC odor
	8/28/2017	5395.91	5,360.47	35.44	--	-	Yes	Yes	0.5	grey with HC odor
	9/22/2017	5395.91	5,360.48	35.43	--	-	Yes	Yes	5.6	light brown, PSH observered
	10/27/2017	5395.91	5,360.57	35.34	--	-	Yes	Yes	0.0	Clear/brown, small black flakes
	11/27/2017	5395.91	5,360.69	35.22	--	-	Yes	Yes	0.0	light brown, PSH droplets, HC odor
	12/11/2017	5395.91	5,360.47	35.44	--	-	Yes	Yes	0.0	Clear/yellow, yellow/orange product droplets

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-23	1/25/2017	5,403.72	NM	NM	--	--	NM	NM	0.0	Bent casing
	2/22/2017	5,403.72	NM	NM	--	--	NM	NM	0.0	Bent casing
	3/27/2017	5,403.72	NM	NM	--	--	NM	NM	0.0	Bent casing
	4/25/2017	5,403.72	NM	35.88	--	--	NM	NM	0.0	Bent casing
	5/22/2017	5,403.72	NM	NM	--	--	NM	NM	0.0	Bent casing
	6/21/2017	5,403.72	NM	36.24	36.21	0.03	NM	NM	224	Bent casing
	7/21/2017	5,403.72	NM	NM	--	--	NM	NM	NM	Bent casing
	8/28/2017	5,403.72	NM	NM	--	--	NM	NM	NM	Bent casing
	9/22/2017	5,403.72	NM	NM	--	--	--	--	0.00	Bent casing
	10/27/2017	5,403.72	NM	34.02	--	--	--	--	0.00	Bent casing
	11/27/2017	5,403.72	NM	NM	--	--	--	--	NM	Bent casing
	12/11/2017	5,403.72	NM	33.58	--	--	Yes	Yes	0.00	Thick and white, yellow/orange product droplets. Casing slightly bent, pushed bailer past bend and was able to bail well.

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-24S	1/25/2017	5,396.08	5,365.74	30.34	--	--	No	No	0.0	Clear
	2/22/2017	5,396.08	5,366.01	30.07	--	--	No	No	0.0	Clear
	3/27/2017	5,396.08	5,366.08	30.00	--	--	No	No	0.0	Clear
	4/25/2017	5,396.08	5,366.08	30.00	--	--	No	No	0.0	Clear
	5/22/2017	5,396.08	5,365.78	30.30	--	--	No	No	0.0	Clear
	6/21/2017	5,396.08	5,365.80	30.28	--	--	Yes	Yes	0.0	Cloudy grey, excess plant material
	7/21/2017	5,396.08	5,365.95	30.13	--	--	No	No	0.0	light brown
	8/28/2017	5,396.08	5,365.90	30.18	--	--	No	No	0.0	light brown
	9/22/2017	5,396.08	5,365.93	30.15	--	--	No	No	0.0	Clear, plant debris
	10/27/2017	5,396.08	5,365.92	30.16	--	--	No	Yes	0.0	Clear/gray, plant debris and invertabrate larva present
	11/27/2017	5,396.08	5,366.18	29.90	--	--	No	No	0.0	light grey, plant debris
	12/11/2017	5,396.08	5,365.87	30.21	--	--	No	No	0.0	Light grey, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-24D	1/25/2017	5,396.08	5,364.86	31.22	--	--	No	No	0.0	Clear
	2/22/2017	5,396.08	5,365.18	30.90	--	--	No	No	0.0	Clear
	3/27/2017	5,396.08	5,365.21	30.87	--	--	No	No	0.0	Clear
	4/25/2017	5,396.08	5,365.22	30.86	--	--	No	No	0.0	Clear
	5/22/2017	5,396.08	5,365.09	30.99	--	--	No	No	0.0	Clear
	6/21/2017	5,396.08	5,365.12	30.96	--	--	No	No	0.0	Clear with large white chunks and excess plant material
	7/21/2017	5,396.08	5,363.24	32.84	--	--	No	No	0.0	light grey
	8/28/2017	5,396.08	5,365.18	30.90	--	--	No	No	0.0	light grey
	9/22/2017	5,396.08	5,365.18	30.90	--	--	No	Yes	0.0	light grey, sulfur smell
	10/27/2017	5,396.08	5,365.21	30.87	--	--	No	No	0.0	Clear, sulfur smell, Plant debris
	11/27/2017	5,396.08	5,365.43	30.65	--	--	No	No	0.0	Clear, Plant debris
	12/11/2017	5,396.08	5,364.16	31.92	--	--	No	No	0.0	Clear, excess plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-25	1/25/2017	5,397.03	5,362.55	34.48	--	--	Yes	Yes	9.0	light grey PSH observed
	2/22/2017	5,397.03	5,362.59	34.44	--	--	Yes	Yes	24.2	light brown PSH observed
	3/27/2017	5,397.03	5,362.70	34.33	--	--	Yes	Yes	13.4	light brown, strong suflur/HC odor
	4/25/2017	5,397.03	5,362.85	34.18	--	--	No	Yes	1.6	Clear, Orange flakes present, slufer smell
	5/22/2017	5,397.03	5,362.69	34.34	--	--	Yes	Yes	7.2	grey, PSH observed
	6/21/2017	5,397.03	5,362.73	34.30	--	--	Yes	Yes	6.6	Clear light brown hue, small white chunks
	7/21/2017	5,397.03	5,362.71	34.32	--	--	Yes	Yes	17.0	light brown, PSH observed, white
	8/28/2017	5,397.03	5,362.69	34.34	--	--	Yes	Yes	20.2	light brown, with floating debris, HC
	9/22/2017	5,397.03	5,362.83	34.20	--	--	No	Yes	4.6	light brown, sulfer smell
	10/27/2017	5,397.03	5,362.79	34.24	--	--	Yes	Yes	4.6	Clear with a light orange hue.
	11/27/2017	5,397.03	5,362.83	34.20	--	--	No	Yes	0.0	light brown, sulfur smell
	12/11/2017	5,397.03	5,362.69	34.34	--	--	No	Yes	0.0	Clear/light brown, sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-26	1/25/2017	5,396.72	5,364.46	32.26	--	--	NM	NM	0.0	could not bail
	2/22/2017	5,396.72	5,364.66	32.06	--	--	NM	NM	0.0	could not bail
	3/27/2017	5,396.72	5,364.72	32.00	--	--	NM	NM	0.0	could not bail
	4/25/2017	5,396.72	5,364.82	31.90	--	--	NM	NM	0.0	Bent casing, could not bail
	5/22/2017	5,396.72	5,364.85	31.87	--	--	NM	NM	0.0	Bent casing, could not bail
	6/21/2017	5,396.72	5,364.87	31.85	--	--	NM	NM	0.0	Bent casing, could not bail
	7/21/2017	5,396.72	5,364.72	32.00	--	--	NM	NM	0.0	Bent casing, could not bail
	8/28/2017	5,396.72	5,364.91	31.81	--	--	NM	NM	0.0	Bent casing, could not bail
	9/22/2017	5,396.72	5,364.80	31.92	--	--	NM	NM	0.0	Bent casing, could not bail
	10/27/2017	5,396.72	5,364.81	31.91	--	--	NM	NM	0.0	Bent casing, could not bail
	11/27/2017	5,396.72	5,364.85	31.87	--	--	NM	NM	0.0	Bent casing, could not bail
	12/11/2017	5,396.72	5,364.83	31.89	--	--	NM	NM	0.0	Bent casing, could not bail

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VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-30	1/25/2017	5,395.59	5,363.02	32.57	--	--	No	No	0.0	Clear
	2/22/2017	5,395.59	5,363.14	32.45	--	--	No	No	0.0	Clear
	3/27/2017	5,395.59	5,363.18	32.41	--	--	No	No	0.0	Clear
	4/25/2017	5,395.59	5,363.27	32.32	--	--	No	No	0.0	Clear
	5/22/2017	5,395.59	5,363.30	32.29	--	--	No	No	0.0	Clear
	6/21/2017	5,395.59	5,363.31	32.28	--	--	No	No	0.0	light brown, plant material present
	7/21/2017	5,395.59	5,363.21	32.38	--	--	No	No	0.0	light brown
	8/28/2017	5,395.59	5,363.25	32.34	--	--	No	No	0.0	light brown
	9/22/2017	5,395.59	5,363.21	32.38	--	--	No	No	0.0	Clear
	10/27/2017	5,395.59	5,363.27	32.32	--	--	No	No	0.0	Clear/light brown, plant matter present
	11/27/2017	5,395.59	5,363.33	32.26	--	--	No	No	0.0	light brown, plant debris
	12/11/2017	5,395.59	5,363.28	32.31	--	--	No	No	0.0	Clear/brown, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-31	1/25/2017	5,396.58	5,364.00	32.58	--	--	No	No	0.0	Clear
	2/22/2017	5,396.58	5,364.06	32.52	--	--	No	No	0.0	Clear
	3/27/2017	5,396.58	5,364.15	32.43	--	--	No	No	0.0	Clear
	4/25/2017	5,396.58	5,364.28	32.30	--	--	No	No	0.7	Clear
	5/22/2017	5,396.58	5,364.26	32.32	--	--	No	No	0.0	Clear
	6/21/2017	5,396.58	5,364.33	32.25	--	--	No	No	0.0	Clear, insect larva swimming in water
	7/21/2017	5,396.58	5,364.18	32.40	--	--	No	No	0.0	Clear
	8/28/2017	5,396.58	5,364.14	32.44	--	--	No	No	0.0	Clear
	9/22/2017	5,396.58	5,364.26	32.32	--	--	No	No	0.0	Clear
	10/27/2017	5,396.58	5,364.32	32.26	--	--	No	No	0.0	Clear/light brown, small yellow flakes
	11/27/2017	5,396.58	5,364.33	32.25	--	--	No	No	0.0	Clear
	12/11/2017	5,396.58	5,364.29	32.29	--	--	No	No	0.0	Clear

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-33	1/25/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry
	2/22/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry
	3/27/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry@33.43
	4/25/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.9	Dry@33.43 !!!!!Possible obstruction in well!!!!!
	5/22/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry@33.48
	6/21/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry@33.43
	7/21/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry@33.43
	8/28/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry @33.43
	9/22/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry @33.43
	10/27/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry @33.43
	11/27/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry @33.43
	12/11/2017	5,396.28	Dry	Dry	--	--	NM	NM	0.0	Dry @33.43

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-34	1/25/2017	5,394.00	5,359.76	34.24	--	--	Yes	Yes	0.0	grey PSH observed
	2/22/2017	5,394.00	5,360.00	34.00	--	--	No	Yes	3.0	light grey, slight degraded HC odor
	3/27/2017	5,394.00	5,360.00	34.00	--	--	Yes	Yes	0.0	grey/black, PSH, HC odor
	4/25/2017	5,394.00	5,360.14	33.86	--	--	Yes	Yes	0.0	grey/black, PSH, HC odor
	5/22/2017	5,394.00	5,360.05	33.95	--	--	Yes	Yes	0.0	grey/black, PSH, HC odor
	6/21/2017	5,394.00	5,358.33	35.67	--	--	No	No	0.0	Cloudy grey, tiny black flakes
	7/21/2017	5,394.00	5,358.92	35.08	--	--	No	No	0.0	Clear
	8/28/2017	5,394.00	5,359.02	34.98	--	--	No	No	0.0	Clear
	9/22/2017	5,394.00	5,358.97	35.03	--	--	No	No	0.0	Clear w/ orange flakes
	10/27/2017	5,394.00	5,359.04	34.96	--	--	No	No	0.0	Clear, small orange and black flakes
	11/27/2017	5,394.00	5,359.11	34.89	--	--	No	No	0.0	Clear, orange flakes
	12/11/2017	5,394.00	5,358.98	35.02	--	--	No	No	0.0	Clear

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-34A	1/25/2017	NM	NM	35.35	--	--	Yes	Yes	0.0	grey PSH observed
	2/22/2017	NM	NM	35.20	--	--	No	No	0.0	light brown
	3/27/2017	NM	NM	35.07	--	--	No	No	0.0	light brown
	4/25/2017	NM	NM	35.00	--	--	No	Yes	0.0	Clear
	5/22/2017	NM	NM	35.12	--	--	No	No	0.0	light brown
	6/21/2017	NM	NM	35.03	--	--	No	Slight	0.0	Clear, light brown, tiny brown flakes
	7/21/2017	NM	NM	33.93	--	--	Yes	Yes	0.3	black, PSH observed, degraded HC odor
	8/28/2017	NM	NM	34.09	--	--	Yes	Yes	0.7	light black with HC odor
	9/22/2017	NM	NM	33.89	--	--	Yes	Yes	0.0	grey, PSH, dead bugs
	10/27/2017	NM	NM	33.84	--	--	Yes	Yes	0.0	Clear/grey, dead bugs and a lizard present in bailer
	11/27/2017	NM	NM	33.79	--	--	No	Yes	0.0	light grey, sulfur ordor
	12/11/2017	NM	NM	33.85	--	--	No	Yes	0.0	Light brown, lizard tail in bailer, invertebrates

TABLE 3
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FORMER GIANT BLOOMFIELD REFINERY
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-35	1/25/2017	5,393.66	5,359.29	34.37	--	--	No	No	0.0	Light Brown
	2/22/2017	5,393.66	5,359.48	34.18	--	--	No	No	0.0	Light Brown
	3/27/2017	5,393.66	5,359.54	34.12	--	--	No	No	0.0	Light Brown, plant debris
	4/25/2017	5,393.66	5,359.66	34.00	--	--	Yes	Yes	0.0	Clear, dirt/debries present
	5/22/2017	5,393.66	5,359.63	34.03	--	--	No	No	0.0	Clear, plant debris
	6/21/2017	5,393.66	5,359.68	33.98	--	--	Yes	Slight	0.0	Clear/light brown tint, plant debris
	7/21/2017	5,393.66	5,359.56	34.10	--	--	Yes	Yes	0.0	light brown cloudy, PSH observered
	8/28/2017	5,393.66	5,359.62	34.04	--	--	Yes	Yes	0.0	light brown cloudy
	9/22/2017	5,393.66	5,359.66	34.00	--	--	No	No	0.0	light grey hue, plant debris
	10/27/2017	5,393.66	5,359.69	33.97	--	--	No	No	0.0	Clear, heavy plant matter present
	11/27/2017	5,393.66	5,359.79	33.87	--	--	Yes	Yes	0.0	light brown, plant debris, sulfur odor
	12/11/2017	5,393.66	5,359.69	33.97	--	--	Yes	Yes	0.0	Light brown, plant debris, sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-39	1/25/2017	5,397.55	5,364.22	33.33	--	--	No	No	0.0	Clear
	2/22/2017	5,397.55	5,364.10	33.45	--	--	No	No	0.0	Clear
	3/27/2017	5,397.55	5,364.24	33.31	--	--	No	No	0.0	Clear
	4/25/2017	5,397.55	5,364.34	33.21	--	--	No	No	0.0	Clear
	5/22/2017	5,397.55	5,364.20	33.35	--	--	No	No	0.0	Clear
	6/21/2017	5,397.55	5,364.28	33.27	--	--	No	No	0.0	Clear, insect debris
	7/21/2017	5,397.55	5,364.20	33.35	--	--	No	No	0.0	light brown
	8/28/2017	5,397.55	5,364.24	33.31	--	--	No	No	0.0	light brown
	9/22/2017	5,397.55	5,364.31	33.24	--	--	No	No	0.0	Clear
	10/27/2017	5,397.55	5,364.29	33.26	--	--	No	No	0.0	Clear, Plant and invertabrate matter present
	11/27/2017	5,397.55	5,364.31	33.24	--	--	No	No	0.0	Clear, plant debris
	12/11/2017	5,397.55	5,364.21	33.34	--	--	No	No	0.0	Clear, excess plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-40	1/25/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry
	2/22/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	3/27/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.4	Dry @ 39.40
	4/25/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	5/22/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	6/21/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	8/28/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	9/22/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.40
	10/27/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.7	Dry @ 39.46
	11/27/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.42
	12/11/2017	5,400.76	Dry	Dry	--	--	NM	NM	0.0	Dry @ 39.39

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VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GBR-41	1/25/2017	5,396.35	DRY	DRY	--	--	NM	NM	328.4	Dry
	2/22/2017	5,396.35	DRY	DRY	--	--	NM	NM	241.4	Dry @ 34.37
	3/27/2017	5,396.35	5,362.11	34.24	34.20	**0.04**	Yes	Yes	248.4	Dry @ 34.35, bailer stained with PSH, no water recovered strong HC odor on bailer
	4/25/2017	5,396.35	DRY	DRY	--	--	NM	NM	9.7	Dry @ 32.60
	5/22/2017	5,396.35	5,362.13	34.22	34.18	**0.04**	NM	NM	22.6	no water recovered bailer stained with product
	6/21/2017	5,396.35	5,362.10	34.25	34.20	**0.05**	Yes	Yes	13.6	Tiny bit of product bailed. Thick and deep yellow color. Stained bailer.
	7/21/2017	5,396.35	5,362.07	34.28	34.22	**0.06**	NM	NM	47.5	no water recovered, bailer stained with product, HC odor
	8/28/2017	5,396.35	5,362.11	34.24	34.21	**0.03**	NM	slight	64.0	No H20 recoverd, black product on tip of bailor, slight odor
	9/22/2017	5,396.35	5,362.04	34.31	34.25	**0.06**	NM	NM	0.3	no h2o recovered, bailer stained with product
	10/27/2017	5,396.35	5,362.05	34.30	34.26	**0.04**	NM	NM	140	no H2O recovered, bailer stained with product
	11/27/2017	5,396.35	5,362.04	34.31	34.28	**0.03**	NM	NM	324	no H2O recovered, bailer stained with product, HC odor, TD @ 34.38
	12/11/2017	5,396.35	5,362.05	34.30	34.28	**0.02**	NM	NM	343	No H2O recovered, bailer stained yellow with product

TABLE 3
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FORMER GIANT BLOOMFIELD REFINERY
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-1	1/25/2017	5,394.30	5,350.99	43.31	--	--	No	No	0.0	Clear
	2/22/2017	5,394.30	5,351.46	42.84	--	--	No	No	0.0	Clear
	3/27/2017	5,394.30	5,351.95	42.35	--	--	No	No	0.0	Clear
	4/25/2017	5,394.30	5,352.30	42.00	--	--	No	No	0.0	Clear
	5/22/2017	5,394.30	5,352.15	42.15	--	--	No	No	0.0	Clear
	6/21/2017	5,394.30	5,352.33	41.97	--	--	No	No	0.0	Clear, small black flakes
	7/21/2017	5,394.30	5,352.01	42.29	--	--	No	No	0.0	Clear
	8/28/2017	5,394.30	5,351.80	42.50	--	--	No	No	0.0	Clear
	9/22/2017	5,394.30	5,351.82	42.48	--	--	No	No	0.0	Clear
	10/27/2017	5,394.30	5,351.94	42.36	--	--	No	No	0.0	Clear
	11/27/2017	5,394.30	5,352.15	42.15	--	--	No	No	0.0	Clear
	12/11/2017	5,394.30	5,352.12	42.18	--	--	No	No	0.0	Clear

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-2	1/25/2017	5,391.28	5,347.52	43.76	--	--	No	No	0.0	Clear
	2/22/2017	5,391.28	5,347.75	43.53	--	--	No	No	0.0	Clear
	3/27/2017	5,391.28	5,347.88	43.40	--	--	No	No	0.0	Clear, floating white debris
	4/25/2017	5,391.28	5,348.03	43.25	--	--	No	Yes	0.0	Clear
	5/22/2017	5,391.28	5,348.05	43.23	--	--	No	No	0.0	Clear
	6/21/2017	5,391.28	5,348.14	43.14	--	--	No	Yes	0.0	Clear, Orange flakes. Sulfur smell
	7/21/2017	5,391.28	5,348.13	43.15	--	--	No	No	0.0	Clear, red floaters, maybe rust
	8/28/2017	5,391.28	5,348.16	43.12	--	--	No	No	0.0	Clear, red flakes, possibly rust
	9/22/2017	5,391.28	5,348.16	43.12	--	--	No	No	0.0	Clear, floating debris
	10/27/2017	5,391.28	5,348.14	43.14	--	--	No	No	0.0	Clear, sulfur smell, small orange flakes
	11/27/2017	5,391.28	5,348.17	43.11	--	--	No	No	0.0	Clear, orange flakes
	12/11/2017	5,391.28	5,348.13	43.15	--	--	No	No	0.0	Clear, orange flakes, sulfur smell

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-3	1/25/2017	5,388.77	5,345.15	43.62	--	--	Yes	Yes	0.0	Clear, white debris and black flecks
	2/22/2017	5,388.77	5,345.51	43.26	--	--	Yes	Yes	0.1	Clear, white debris and black flecks
	3/27/2017	5,388.77	5,345.84	42.93	--	--	No	yes	0.0	Clear, white debris and black flecks
	4/25/2017	5,388.77	5,346.07	42.70	--	--	Yes	Yes	0.0	Clear, black flecks, sulfer smell
	5/22/2017	5,388.77	5,345.99	42.78	--	--	Yes	Yes	0.0	grey, white debris and black flakes
	6/21/2017	5,388.77	5,346.19	42.58	--	--	Yes	Yes	0.0	Clear with large black and white flakes. Sulfur smell
	7/21/2017	5,388.77	5,346.09	42.68	--	--	Yes	Yes	0.0	grey, black flakes, white debris, degraded HC odor, sulfur smell
	8/28/2017	5,388.77	5,346.05	42.72	--	--	Yes	Yes	0.0	light grey, strong sulfar odor with white debri
	9/22/2017	5,388.77	5,345.94	42.83	--	--	No	Yes	0.0	black product with white alga matter,sulfur smell
	10/27/2017	5,388.77	5,345.86	42.91	--	--	Slight	No	0.0	Clear, large white chunks, sulfur smell
	11/27/2017	5,388.77	5,346.05	42.72	--	--	Slight	Yes	0.0	Clear, large white and black chunks, sulfur smell
	12/11/2017	5,388.77	5,345.28	43.49	--	--	Slight	Yes	0.0	Clear, large black and white chunks, sulfur smell

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VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-4	1/25/2017	5,390.02	5,347.97	42.05	--	--	No	No	0.0	Clear
	2/22/2017	5,390.02	5,348.10	41.92	--	--	No	No	0.0	Clear, slightly turbid
	3/27/2017	5,390.02	5,348.26	41.76	--	--	No	No	0.0	light brown
	4/25/2017	5,390.02	5,348.36	41.66	--	--	No	Yes	0.0	Clear
	5/22/2017	5,390.02	5,348.34	41.68	--	--	No	No	0.0	Clear
	6/21/2017	5,390.02	5,348.43	41.59	--	--	No	Yes	0.0	Clear/slightly brown, black flakes
	7/21/2017	5,390.02	5,348.34	41.68	--	--	No	No	0.0	light brown
	8/28/2017	5,390.02	5,348.36	41.66	--	--	No	No	0.0	light brown
	9/22/2017	5,390.02	5,348.42	41.60	--	--	No	No	0.0	grey hue, orange flakes
	10/27/2017	5,390.02	5,348.39	41.63	--	--	No	No	0.0	Clear/black, sulfur smell
	11/27/2017	5,390.02	5,348.45	41.57	--	--	No	No	0.0	light brown, orange flakes
	12/11/2017	5,390.02	5,348.40	41.62	--	--	No	Yes	0.0	Clear/light brown, orange flakes

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-5	1/25/2017	5,391.56	5,349.39	42.17	--	--	No	No	0.0	Clear
	2/22/2017	5,391.56	5,349.53	42.03	--	--	No	No	0.0	Clear
	3/27/2017	5,391.56	5,349.68	41.88	--	--	No	No	0.0	Clear
	4/25/2017	5,391.56	5,349.75	41.81	--	--	No	No	0.0	Clear
	5/22/2017	5,391.56	5,349.78	41.78	--	--	No	No	0.0	Clear
	6/21/2017	5,391.56	5,349.82	41.74	--	--	No	No	0.0	Clear, Insect larva in water
	7/21/2017	5,391.56	5,349.79	41.77	--	--	No	No	0.0	Clear
	8/28/2017	5,391.56	5,349.81	41.75	--	--	No	No	0.0	Clear
	9/22/2017	5,391.56	5,349.78	41.78	--	--	No	No	0.0	Clear
	10/27/2017	5,391.56	5,349.78	41.78	--	--	No	No	0.0	Clear, small black flakes
	11/27/2017	5,391.56	5,349.86	41.70	--	--	No	No	0.0	Clear
	12/11/2017	5,391.56	5,349.84	41.72	--	--	No	No	0.0	Clear, plant debris

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VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-6	1/25/2017	5,391.81	5,350.53	41.28	--	--	No	No	0.0	Clear
	2/22/2017	5,391.81	5,350.59	41.22	--	--	No	No	0.0	Clear
	3/27/2017	5,391.81	5,350.76	41.05	--	--	No	No	0.0	Clear
	4/25/2017	5,391.81	5,350.86	40.95	--	--	No	Slight	0.0	Clear
	5/22/2017	5,391.81	5,350.83	40.98	--	--	No	No	0.0	Clear
	6/21/2017	5,391.81	5,350.92	40.89	--	--	No	No	0.0	Clear
	7/21/2017	5,391.81	5,350.88	40.93	--	--	No	No	0.0	Clear
	8/28/2017	5,391.81	5,350.91	40.90	--	--	No	No	0.0	Clear
	9/22/2017	5,391.81	5,350.89	40.92	--	--	No	No	0.0	Clear, red flakes
	10/27/2017	5,391.81	5,350.88	40.93	--	--	No	No	0.0	Clear, small orange flakes
	11/27/2017	5,391.81	5,350.94	40.87	--	--	No	No	0.0	Clear, small orange flakes
	12/11/2017	5,391.81	5,350.89	40.92	--	--	No	No	0.0	Clear, small orange flakes

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-9	1/25/2017	5,395.70	5,355.00	40.70	--	--	No	Yes	1.2	Clear
	2/22/2017	5,395.70	5,355.02	40.68	--	--	No	Yes	10.4	Clear
	3/27/2017	5,395.70	5,355.30	40.40	--	--	No	Yes	14.9	Clear, sulfur smell
	4/25/2017	5,395.70	5,355.63	40.07	--	--	No	Yes	1.9	Clear, sulfur smell
	5/22/2017	5,395.70	5,355.35	40.35	--	--	No	Yes	0.0	Clear, sulfur smell
	6/21/2017	5,395.70	5,355.63	40.07	--	--	No	Yes	0.0	Clear, large black flakes, sulfur smell
	7/21/2017	5,395.70	5,355.60	40.10	--	--	No	Yes	0.0	Clear, degraded HC odor, sulfur smell
	8/28/2017	5,395.70	5,355.47	40.23	--	--	No	Yes	0.0	Clear with sulfur odor
	9/22/2017	5,395.70	5,355.58	40.12	--	--	No	Yes	0.2	Clear with sulfur odor
	10/27/2017	5,395.70	5,355.59	40.11	--	--	No	Yes	0.0	Clear, large black flakes, sulfur smell
	11/27/2017	5,395.70	5,355.52	40.18	--	--	No	Yes	0.0	Clear, slight sulfur odor
	12/11/2017	5,395.70	5,355.33	40.37	--	--	No	No	0.0	Clear, large white flakes, sulfur smell

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-10	1/25/2017	5,395.02	5,359.02	36.00	--	--	No	No	0.0	Clear
	2/22/2017	5,395.02	5,359.18	35.84	--	--	No	No	0.0	Clear
	3/27/2017	5,395.02	5,359.25	35.77	--	--	No	No	0.0	Clear, plant debris
	4/25/2017	5,395.02	5,359.33	35.69	--	--	No	No	2.1	Clear, plant debris
	5/22/2017	5,395.02	5,359.27	35.75	--	--	No	No	0.0	Clear
	6/21/2017	5,395.02	5,359.37	35.65	--	--	No	No	0.0	Clear
	7/21/2017	5,395.02	5,359.18	35.84	--	--	No	No	0.0	Clear
	8/28/2017	5,395.02	5,359.21	35.81	--	--	No	No	0.0	Clear
	9/22/2017	5,395.02	5,359.27	35.75	--	--	No	No	0.0	Clear
	10/27/2017	5,395.02	5,359.32	35.70	--	--	No	No	0.0	Clear
	11/27/2017	5,395.02	5,359.32	35.70	--	--	No	No	0.0	Clear
	12/11/2017	5,395.02	5,359.19	35.83	--	--	No	No	0.0	Clear

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VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-11	1/25/2017	5,397.85	5,364.97	32.88	--	--	No	No	0.0	Clear
	2/22/2017	5,397.85	5,365.08	32.77	--	--	No	No	0.0	Clear, slight grey hue
	3/27/2017	5,397.85	5,365.19	32.66	--	--	No	No	0.0	Clear
	4/25/2017	5,397.85	5,365.40	32.45	--	--	No	No	0.0	Clear
	5/22/2017	5,397.85	5,365.25	32.60	--	--	No	No	0.0	Clear
	6/21/2017	5,397.85	5,365.38	32.47	--	--	No	No	0.0	Clear, Small plant debris
	7/21/2017	5,397.85	5,365.25	32.60	--	--	No	No	0.0	Clear
	8/28/2017	5,397.85	5,365.20	32.65	--	--	No	No	0.0	Clear
	9/22/2017	5,397.85	5,365.37	32.48	--	--	No	No	0.0	light grey
	10/27/2017	5,397.85	5,365.25	32.60	--	--	No	No	0.0	Clear/light brown, heavy plant material present
	11/27/2017	5,397.85	5,365.25	32.60	--	--	No	No	0.0	light brown, plant debris
	12/11/2017	5,397.85	5,365.08	32.77	--	--	No	No	0.0	Clear/brown, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-12	1/25/2017	5,397.24	5,362.19	35.05	--	--	No	No	0.0	Clear
	2/22/2017	5,397.24	5,362.76	34.48	--	--	No	No	0.0	Clear, slight brown hue
	3/27/2017	5,397.24	5,362.41	34.83	--	--	No	No	0.0	Light Brown
	4/25/2017	5,397.24	5,362.49	34.75	--	--	Yes	Yes	0.0	Clear, Black and Orange flakes
	5/22/2017	5,397.24	5,362.86	34.38	--	--	No	No	0.7	light brown
	6/21/2017	5,397.24	5,362.55	34.69	--	--	No	No	0.7	Clear, Black and Orange flakes
	7/21/2017	5,397.24	5,362.79	34.45	--	--	No	No	0.7	light brown
	8/28/2017	5,397.24	5,362.81	34.43	--	--	No	No	0.0	light brown with red flakes, possibly rust
	9/22/2017	5,397.24	5,362.86	34.38	--	--	No	No	0.0	light brown
	10/27/2017	5,397.24	5,362.55	34.69	--	--	Yes	No	0.0	Clear/light brown, small orange flakes
	11/27/2017	5,397.24	5,362.95	34.29	--	--	No	No	0.0	light brown, small orange flakes
	12/11/2017	5,397.24	5,362.56	34.68	--	--	No	No	0.0	Clear/light brown, small orange flakes

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
GRW-13	1/25/2017	5,396.90	5,363.83	33.07	--	--	No	No	0.0	Clear
	2/22/2017	5,396.90	5,363.90	33.00	--	--	No	No	0.0	Clear
	3/27/2017	5,396.90	5,363.95	32.95	--	--	No	No	0.0	Clear
	4/25/2017	5,396.90	5,364.09	32.81	--	--	No	No	0.0	Clear
	5/22/2017	5,396.90	5,364.10	32.80	--	--	No	No	0.0	Clear
	6/21/2017	5,396.90	5,364.12	32.78	--	--	No	No	0.0	Clear
	7/21/2017	5,396.90	5,363.98	32.92	--	--	No	No	0.0	Clear
	8/28/2017	5,396.90	5,364.05	32.85	--	--	No	No	0.0	Clear
	9/22/2017	5,396.90	5,364.05	32.85	--	--	No	No	0.0	Clear plant debris
	10/27/2017	5,396.90	5,364.09	32.81	--	--	No	No	0.0	Clear
	11/27/2017	5,396.90	5,364.15	32.75	--	--	No	No	0.0	Clear
	12/11/2017	5,396.90	5,364.08	32.82	--	--	No	No	0.0	Clear

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-1	1/25/2017	5,383.54	--	NM	--	--	NM	NM	0.0	Buried
	2/22/2017	5,383.54	--	NM	--	--	NM	NM	0.0	Buried
	3/27/2017	5,383.54	5,345.39	38.15	--	--	No	No	0.0	Clear
	4/25/2017	5,383.54	5,345.48	38.06	--	--	No	No	0.0	Clear, Bugs and plant material present
	5/22/2017	5,383.54	5,345.49	38.05	--	--	No	No	1.6	Clear
	6/21/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	7/21/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	8/28/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	9/22/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	10/27/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	11/27/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged
	12/11/2017	5,383.54	--	NM	--	--	NM	NM	NM	Well plugged

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-2	1/25/2017	5,381.66	5,341.11	40.55	--	--	No	No	0.0	Clear
	2/22/2017	5,381.66	5,341.30	40.36	--	--	No	No	0.0	Clear
	3/27/2017	5,381.66	5,341.33	40.33	--	--	No	No	0.0	Clear
	4/25/2017	5,381.66	5,341.47	40.19	--	--	Yes	Yes	0.0	Clear, Orange hue
	5/22/2017	5,381.66	5,341.44	40.22	--	--	No	No	0.0	Clear
	6/21/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	7/21/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	8/28/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	9/22/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	10/27/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	11/27/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged
	12/11/2017	5,381.66	--	NM	--	--	NM	NM	NM	Well plugged

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-5	1/25/2017	5,378.36	5,340.20	38.16	--	--	No	No	0.0	Clear
	2/22/2017	5,378.36	5,340.36	38.00	--	--	No	No	0.0	Clear
	3/27/2017	5,378.36	5,340.43	37.93	--	--	No	No	0.0	Clear
	4/25/2017	5,378.36	5,340.55	37.81	--	--	No	No	0.0	Clear
	5/22/2017	5,378.36	5,340.54	37.82	--	--	No	No	2.4	Clear
	6/21/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged
	8/28/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged
	9/22/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged
	10/27/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged
	11/27/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged
	12/11/2017	5,378.36	--	NM	--	--	NM	NM	NM	Well plugged

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-6	1/25/2017	5,378.36	5,340.46	37.90	--	--	No	No	0.0	Clear
	2/22/2017	5,378.36	5,340.61	37.75	--	--	No	No	0.0	Clear
	3/27/2017	5,378.36	5,340.59	37.77	--	--	No	No	0.0	Clear
	4/25/2017	5,378.36	5,340.75	37.61	--	--	No	No	0.0	Clear
	5/22/2017	5,378.36	5,340.63	37.73	--	--	No	No	2.2	Clear
	6/21/2017	5,378.36	5,340.84	37.52	--	--	No	No	0.0	Clear
	7/21/2017	5,378.36	5,340.66	37.70	--	--	No	No	0.0	Clear
	8/28/2017	5,378.36	5,340.66	37.70	--	--	No	No	0.0	Clear
	9/22/2017	5,378.36	5,340.55	37.81	--	--	No	No	0.0	Clear
	10/27/2017	5,378.36	5,340.56	37.80	--	--	No	No	0.0	Clear/light brown, Insect larva present
	11/27/2017	5,378.36	5,340.56	37.80	--	--	No	No	0.0	Clear
	12/11/2017	5,378.36	5,340.53	37.83	--	--	No	No	0.0	Clear, plant debris, Invertebrates

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-8	1/25/2017	5,380.25	5,341.85	38.40	--	--	No	No	0.0	Clear
	2/22/2017	5,380.25	5,341.98	38.27	--	--	No	No	0.0	Clear
	3/27/2017	5,380.25	5,342.01	38.24	--	--	No	No	0.0	Clear
	4/25/2017	5,380.25	5,342.20	38.05	--	--	No	No	0.0	Clear
	5/22/2017	5,380.25	5,342.25	38.00	--	--	No	No	0.0	Clear
	6/21/2017	5,380.25	5,342.21	38.04	--	--	No	No	0.0	Clear
	7/21/2017	5,380.25	5,342.01	38.24	--	--	No	No	0.0	Clear
	8/28/2017	5,380.25	5,342.05	38.20	--	--	No	No	0.0	Clear
	9/22/2017	5,380.25	5,342.05	38.20	--	--	No	No	0.0	Clear
	10/27/2017	5,380.25	5,342.06	38.19	--	--	Yes	Yes	0.0	Clear/light brown, small orange flakes
	11/27/2017	5,380.25	5,342.01	38.24	--	--	Yes	Yes	0.0	Clear, plant debris
	12/11/2017	5,380.25	5,342.04	38.21	--	--	Yes	Yes	0.0	Clear, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-9	1/25/2017	5,380.79	NM	NM	--	--	NM	NM	0.0	Obstruction in well
	2/22/2017	5,380.79	NM	NM	--	--	NM	NM	0.0	Obstruction in well
	3/27/2017	5,380.79	5,343.39	37.40	--	--	NM	NM	0.0	root ball in well, meter stopped at 37.45
	4/25/2017	5,380.79	5,343.49	37.30	--	--	No	Yes	0.0	Root ball in well
	5/22/2017	5,380.79	5,343.51	37.28	--	--	No	No	2.0	Clear, half bailer full
	6/21/2017	5,380.79	5,343.56	37.23	--	--	No	Yes	0.0	Rootball removed. Cloudy black with excessive plant matter
	7/21/2017	5,380.79	5,343.43	37.36	--	--	No	Yes	28.5	no water recoverted, obstruction in well, bailer smelled
	8/28/2017	5,380.79	5,343.45	37.34	--	--	No	Yes	10.2	No H20 recoverd, HC odor
	9/22/2017	5,380.79	5,343.36	37.43	--	--	No	No	0.0	No H20 recoverd
	10/27/2017	5,380.79	5,343.38	37.41	--	--	Yes	Yes	0.0	Clear/black, heavy plant matter present
	11/27/2017	5,380.79	5,343.42	37.37	--	--	No	No	0.0	Clear, plant debris
	12/11/2017	5,380.79	5,343.30	37.49	--	--	No	No	0.0	Clear, plant debris

TABLE 3
VOLUNTARY MONITORING OF STATIC GROUNDWATER CONDITIONS - MONTHLY GROUNDWATER OBSERVATIONS

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

Groundwater Monitoring Wells	Date	Top of Casing Elevation	Adjusted Groundwater Elevation	Depth to Groundwater (feet BTOC)	Depth to Product (feet BTOC)	Product Thickness (feet)	Sheen	Hydrocarbon Odor	Headspace (ppm)	Comments
SHS-19	1/25/2017	5,378.89	5,340.98	37.91	--	--	No	No	0.0	Clear
	2/22/2017	5,378.89	5,341.12	37.77	--	--	No	No	0.0	Clear
	3/27/2017	5,378.89	5,341.28	37.61	--	--	No	No	0.0	Clear
	4/25/2017	5,378.89	5,341.33	37.56	--	--	No	No	0.0	Clear
	5/22/2017	5,378.89	5,341.33	37.56	--	--	No	No	1.8	Clear
	6/21/2017	5,378.89	5,341.47	37.42	--	--	No	No	0.0	Clear
	7/21/2017	5,378.89	5,341.19	37.70	--	--	No	No	0.0	Clear
	8/28/2017	5,378.89	5,341.21	37.68	--	--	No	No	0.0	Clear
	9/22/2017	5,378.89	5,341.14	37.75	--	--	No	No	0.0	Clear
	10/27/2017	5,378.89	5,341.17	37.72	--	--	No	No	0.0	Clear, plant matter present
	11/27/2017	5,378.89	5,341.17	37.72	--	--	No	No	0.0	Clear, plant matter present
	12/11/2017	5,379.89	5,341.85	38.04	--	--	No	No	0.0	Clear, plant debris

NOTES:
µS - microseimens
-- No Measurement
BOLD - Measured Product
BTOC - Below top of casing
mg/L - Milligrams per liter
mV - Millivolt
NM - Not Measured
ORP - Oxidation reduction potential
ppm -Parts per million

TABLE 4
PLUGGING AND ABANDONMENT OF SHS-1 THROUGH SHS-5 ANALYTICAL RESULTS

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

Analyte	NMWQCC Standard	Unit	SHS-1	SHS-2	SHS-4	SHS-5
			6/1/2017	6/1/2017	6/1/2017	6/1/2017
GRO	NE	mg/L	<0.10	0.11	<0.10	<0.050
DRO	NE	mg/L	1.5	24	<0.20	<0.20
MRO	NE	mg/L	<2.5	2.8	<2.5	<2.5
General Chemistry						
Total Alkalinity	NE	mg/L	752.4	298.4	202.8	231.2
Carbonate	NE	mg/L	<2.000	<2.000	<2.000	<2.000
Bicarbonate	NE	mg/L	752.4	298.4	202.8	231.2
Specific Conductance	NE	µmhos/cm	3,500	4,600	2,900	2,600
PH	6-9	pH Units	7.55	6.90	7.63	7.68
Total Dissolved Solids	1,000	mg/L	**2,400**	**4,100**	**2,270**	**2,030**
Chloride	250	mg/L	100	**310**	59	50
Sulfate	600	mg/L	**1,300**	**2,200**	**1,600**	**1,200**
Cations - Method 6010B						
Calcium	NE	mg/L	610	560	520	380
Magnesium	NE	mg/L	150	160	68	32
Potassium	NE	mg/L	39	23	23	7.4
Sodium	NE	mg/L	490	500	280	270

Notes:
BOLD - indicates concentration exceeds the NMWQCC standard
DRO - diesel range organics
GRO - gasoline range organics
µmhos/cm - micromhos per centimeter
mg/L - milligrams per liter
MRO - motor oil range organics
NE - not established
NMWQCC - New Mexico Water Quality Control Commission

APPENDIX A

LABORATORY ANALYTICAL REPORTS

Western Refining

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 31, 2018

Devin Hencmann

Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL:
FAX

RE: GBR Annual Sampling OrderNo.: 1712475

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 7 sample(s) on 12/8/2017 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 12, 2018.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712475**
Date Reported: **1/31/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-51
Collection Date: 12/7/2017 11:58:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1200	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.65	0.10		mg/L	1	12/8/2017 5:47:25 PM	R47664
Chloride	51	10		mg/L	20	12/8/2017 5:59:50 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 5:47:25 PM	R47664
Bromide	0.25	0.10		mg/L	1	12/8/2017 5:47:25 PM	R47664
Nitrogen, Nitrate (As N)	7.6	0.10		mg/L	1	12/8/2017 5:47:25 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 5:59:50 PM	R47664
Sulfate	1200	25	*	mg/L	50	12/26/2017 4:33:43 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	2700	5.0		µmhos/cm	1	12/12/2017 2:16:17 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	208.3	20.00		mg/L CaCO3	1	12/12/2017 2:16:17 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 2:16:17 AM	R47724
Total Alkalinity (as CaCO3)	208.3	20.00		mg/L CaCO3	1	12/12/2017 2:16:17 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2250	20.0	*	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.65		H	pH units	1	12/12/2017 2:16:17 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	420	10		mg/L	10	12/26/2017 5:58:58 PM	B48016
Iron	0.080	0.020		mg/L	1	12/26/2017 4:06:47 PM	B48016
Magnesium	29	1.0		mg/L	1	12/26/2017 4:06:47 PM	B48016
Manganese	ND	0.020		mg/L	10	12/26/2017 5:58:58 PM	B48016
Potassium	ND	1.0		mg/L	1	12/26/2017 4:06:47 PM	B48016
Sodium	300	10		mg/L	10	12/26/2017 5:58:58 PM	B48016
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Toluene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Ethylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Naphthalene	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-51
Collection Date: 12/7/2017 11:58:00 AM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Acetone	ND	10		µg/L	1	12/15/2017 6:39:00 PM	R47832
Bromobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Bromoform	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Bromomethane	ND	3.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
2-Butanone	ND	10		µg/L	1	12/15/2017 6:39:00 PM	R47832
Carbon disulfide	ND	10		µg/L	1	12/15/2017 6:39:00 PM	R47832
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Chlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Chloroethane	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Chloroform	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Chloromethane	ND	3.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Dibromomethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
2-Hexanone	ND	10		µg/L	1	12/15/2017 6:39:00 PM	R47832
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
4-Isopropyltoluene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2017 6:39:00 PM	R47832
Methylene Chloride	ND	3.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-51
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 11:58:00 AM
Lab ID: 1712475-001 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Styrene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Vinyl chloride	ND	1.0		µg/L	1	12/15/2017 6:39:00 PM	R47832
Xylenes, Total	ND	1.5		µg/L	1	12/15/2017 6:39:00 PM	R47832
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/15/2017 6:39:00 PM	R47832
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	12/15/2017 6:39:00 PM	R47832
Surr: Dibromofluoromethane	100	70-130		%Rec	1	12/15/2017 6:39:00 PM	R47832
Surr: Toluene-d8	99.7	70-130		%Rec	1	12/15/2017 6:39:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-52
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 12:00:00 PM
Lab ID: 1712475-002 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1300	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.53	0.10		mg/L	1	12/8/2017 6:12:15 PM	R47664
Chloride	54	10		mg/L	20	12/8/2017 6:24:39 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 6:12:15 PM	R47664
Bromide	0.33	0.10		mg/L	1	12/8/2017 6:12:15 PM	R47664
Nitrogen, Nitrate (As N)	7.2	0.10		mg/L	1	12/8/2017 6:12:15 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 6:24:39 PM	R47664
Sulfate	1500	25	*	mg/L	50	12/26/2017 4:46:08 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3100	5.0		µmhos/cm	1	12/12/2017 2:32:34 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	218.4	20.00		mg/L CaCO3	1	12/12/2017 2:32:34 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 2:32:34 AM	R47724
Total Alkalinity (as CaCO3)	218.4	20.00		mg/L CaCO3	1	12/12/2017 2:32:34 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2640	20.0	*	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.86		H	pH units	1	12/12/2017 2:32:34 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	460	5.0		mg/L	5	12/26/2017 2:50:02 PM	35567
Iron	0.048	0.020		mg/L	1	12/21/2017 7:58:14 PM	35567
Magnesium	33	1.0		mg/L	1	12/21/2017 7:58:14 PM	35567
Manganese	ND	0.0020		mg/L	1	12/26/2017 2:47:54 PM	35567
Potassium	1.1	1.0		mg/L	1	12/21/2017 7:58:14 PM	35567
Sodium	300	5.0		mg/L	5	12/26/2017 2:50:02 PM	35567
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Toluene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Ethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Naphthalene	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-002 **Matrix:** AQUEOUS

Client Sample ID: GBR-52
Collection Date: 12/7/2017 12:00:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Acetone	ND	10		µg/L	1	12/15/2017 7:03:00 PM	R47832
Bromobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Bromoform	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Bromomethane	ND	3.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
2-Butanone	ND	10		µg/L	1	12/15/2017 7:03:00 PM	R47832
Carbon disulfide	ND	10		µg/L	1	12/15/2017 7:03:00 PM	R47832
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Chlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Chloroethane	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Chloroform	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Chloromethane	ND	3.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Dibromomethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
2-Hexanone	ND	10		µg/L	1	12/15/2017 7:03:00 PM	R47832
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
4-Isopropyltoluene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2017 7:03:00 PM	R47832
Methylene Chloride	ND	3.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-002 **Matrix:** AQUEOUS

Client Sample ID: GBR-52
Collection Date: 12/7/2017 12:00:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Styrene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Vinyl chloride	ND	1.0		µg/L	1	12/15/2017 7:03:00 PM	R47832
Xylenes, Total	ND	1.5		µg/L	1	12/15/2017 7:03:00 PM	R47832
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/15/2017 7:03:00 PM	R47832
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	12/15/2017 7:03:00 PM	R47832
Surr: Dibromofluoromethane	100	70-130		%Rec	1	12/15/2017 7:03:00 PM	R47832
Surr: Toluene-d8	100	70-130		%Rec	1	12/15/2017 7:03:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-49
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 1:40:00 PM
Lab ID: 1712475-003 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst: **DBK**	
Antimony	ND	0.0010		mg/L	1	1/3/2018 6:55:11 PM	35567
Arsenic	ND	0.0010		mg/L	1	1/2/2018 6:43:54 PM	35567
Copper	0.0023	0.0010		mg/L	1	12/29/2017 12:50:30 PM	35567
Lead	ND	0.00050		mg/L	1	12/29/2017 12:50:30 PM	35567
Selenium	0.0027	0.0010		mg/L	1	1/3/2018 6:55:11 PM	35567
Thallium	ND	0.00050		mg/L	1	12/29/2017 12:50:30 PM	35567
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1100	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.37	0.10		mg/L	1	12/8/2017 6:37:03 PM	R47664
Chloride	150	10		mg/L	20	12/8/2017 6:49:27 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 6:37:03 PM	R47664
Bromide	0.50	0.10		mg/L	1	12/8/2017 6:37:03 PM	R47664
Nitrogen, Nitrate (As N)	0.59	0.10		mg/L	1	12/8/2017 6:37:03 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 6:49:27 PM	R47664
Sulfate	1300	25	*	mg/L	50	12/26/2017 4:58:33 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3400	5.0		µmhos/cm	1	12/12/2017 2:44:23 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	274.8	20.00		mg/L CaCO3	1	12/12/2017 2:44:23 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 2:44:23 AM	R47724
Total Alkalinity (as CaCO3)	274.8	20.00		mg/L CaCO3	1	12/12/2017 2:44:23 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2720	20.0	*	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.86		H	pH units	1	12/12/2017 2:44:23 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Barium	0.015	0.0020		mg/L	1	12/21/2017 8:10:58 PM	35567
Beryllium	ND	0.0020		mg/L	1	12/26/2017 2:52:10 PM	35567
Cadmium	ND	0.0020		mg/L	1	12/26/2017 2:52:10 PM	35567
Calcium	390	5.0		mg/L	5	12/26/2017 2:53:59 PM	35567
Chromium	0.018	0.0060		mg/L	1	12/26/2017 2:52:10 PM	35567
Iron	0.44	0.020	*	mg/L	1	12/21/2017 8:10:58 PM	35567
Magnesium	32	1.0		mg/L	1	12/21/2017 8:10:58 PM	35567
Manganese	0.30	0.0020	*	mg/L	1	12/26/2017 2:52:10 PM	35567
Nickel	0.056	0.010		mg/L	1	12/21/2017 8:10:58 PM	35567

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-49
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 1:40:00 PM
Lab ID: 1712475-003 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Potassium	1.3	1.0		mg/L	1	12/21/2017 8:10:58 PM	35567
Silver	0.0057	0.0050		mg/L	1	12/26/2017 2:52:10 PM	35567
Sodium	430	5.0		mg/L	5	12/26/2017 2:53:59 PM	35567
Zinc	ND	0.010		mg/L	1	12/26/2017 2:52:10 PM	35567
EPA METHOD 245.1: MERCURY						Analyst: **MED**	
Mercury	ND	0.00020	H	mg/L	1	1/30/2018 3:00:20 PM	36255
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Toluene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Ethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Naphthalene	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Acetone	ND	10		µg/L	1	12/15/2017 7:26:00 PM	R47832
Bromobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Bromoform	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Bromomethane	ND	3.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
2-Butanone	ND	10		µg/L	1	12/15/2017 7:26:00 PM	R47832
Carbon disulfide	ND	10		µg/L	1	12/15/2017 7:26:00 PM	R47832
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Chlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Chloroethane	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Chloroform	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Chloromethane	ND	3.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Dibromomethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-49
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 1:40:00 PM
Lab ID: 1712475-003 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
2-Hexanone	ND	10		µg/L	1	12/15/2017 7:26:00 PM	R47832
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
4-Isopropyltoluene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2017 7:26:00 PM	R47832
Methylene Chloride	ND	3.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Styrene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Vinyl chloride	ND	1.0		µg/L	1	12/15/2017 7:26:00 PM	R47832
Xylenes, Total	ND	1.5		µg/L	1	12/15/2017 7:26:00 PM	R47832
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/15/2017 7:26:00 PM	R47832
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	12/15/2017 7:26:00 PM	R47832
Surr: Dibromofluoromethane	101	70-130		%Rec	1	12/15/2017 7:26:00 PM	R47832
Surr: Toluene-d8	99.3	70-130		%Rec	1	12/15/2017 7:26:00 PM	R47832

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-17
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 2:30:00 PM
Lab ID: 1712475-004 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst:	**pmf**
Hardness (As CaCO3)	1000	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst:	**MRA**
Fluoride	0.57	0.10		mg/L	1	12/8/2017 7:01:52 PM	R47664
Chloride	50	10		mg/L	20	12/8/2017 7:14:16 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 7:01:52 PM	R47664
Bromide	0.21	0.10		mg/L	1	12/8/2017 7:01:52 PM	R47664
Nitrogen, Nitrate (As N)	3.8	0.10		mg/L	1	12/8/2017 7:01:52 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 7:14:16 PM	R47664
Sulfate	1000	25	*	mg/L	50	12/26/2017 5:10:57 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst:	**JRR**
Conductivity	2600	5.0		µmhos/cm	1	12/12/2017 2:57:56 AM	R47724
SM2320B: ALKALINITY						Analyst:	**JRR**
Bicarbonate (As CaCO3)	220.8	20.00		mg/L CaCO3	1	12/12/2017 2:57:56 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 2:57:56 AM	R47724
Total Alkalinity (as CaCO3)	220.8	20.00		mg/L CaCO3	1	12/12/2017 2:57:56 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst:	**KS**
Total Dissolved Solids	2110	100	*D	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst:	**JRR**
pH	7.90		H	pH units	1	12/12/2017 2:57:56 AM	R47724
EPA METHOD 200.7: METALS						Analyst:	**pmf**
Calcium	370	10		mg/L	10	12/26/2017 2:57:56 PM	35567
Iron	9.3	0.20	*	mg/L	10	12/26/2017 2:57:56 PM	35567
Magnesium	30	1.0		mg/L	1	12/21/2017 8:12:48 PM	35567
Manganese	0.25	0.0020	*	mg/L	1	12/26/2017 2:56:06 PM	35567
Potassium	2.0	1.0		mg/L	1	12/21/2017 8:12:48 PM	35567
Sodium	260	10		mg/L	10	12/26/2017 2:57:56 PM	35567
EPA METHOD 8270C: PAHS						Analyst:	**DAM**
Naphthalene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Acenaphthene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Fluorene	ND	1.0		µg/L	1	12/15/2017 9:49:41 PM	35504
Phenanthrene	ND	1.0		µg/L	1	12/15/2017 9:49:41 PM	35504
Anthracene	ND	1.0		µg/L	1	12/15/2017 9:49:41 PM	35504
Fluoranthene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-17
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 2:30:00 PM
Lab ID: 1712475-004 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Pyrene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Benz(a)anthracene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Chrysene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/15/2017 9:49:41 PM	35504
Surr: N-hexadecane	82.5	18.7-145		%Rec	1	12/15/2017 9:49:41 PM	35504
Surr: Benzo(e)pyrene	75.5	28.2-137		%Rec	1	12/15/2017 9:49:41 PM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Toluene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Ethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Naphthalene	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Acetone	ND	10		µg/L	1	12/15/2017 7:50:00 PM	R47832
Bromobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Bromoform	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Bromomethane	ND	3.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
2-Butanone	ND	10		µg/L	1	12/15/2017 7:50:00 PM	R47832
Carbon disulfide	ND	10		µg/L	1	12/15/2017 7:50:00 PM	R47832
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Chlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Chloroethane	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Chloroform	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Chloromethane	ND	3.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832

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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-17
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 2:30:00 PM
Lab ID: 1712475-004 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Dibromomethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
2-Hexanone	ND	10		µg/L	1	12/15/2017 7:50:00 PM	R47832
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
4-Isopropyltoluene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2017 7:50:00 PM	R47832
Methylene Chloride	ND	3.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Styrene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Vinyl chloride	ND	1.0		µg/L	1	12/15/2017 7:50:00 PM	R47832
Xylenes, Total	ND	1.5		µg/L	1	12/15/2017 7:50:00 PM	R47832
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/15/2017 7:50:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-004 **Matrix:** AQUEOUS

Client Sample ID: GBR-17
Collection Date: 12/7/2017 2:30:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	12/15/2017 7:50:00 PM	R47832
Surr: Dibromofluoromethane	101	70-130		%Rec	1	12/15/2017 7:50:00 PM	R47832
Surr: Toluene-d8	97.8	70-130		%Rec	1	12/15/2017 7:50:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-48
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 3:22:00 PM
Lab ID: 1712475-005 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst: **DBK**	
Antimony	ND	0.0010		mg/L	1	1/3/2018 7:08:18 PM	35567
Arsenic	0.0080	0.0050		mg/L	5	1/3/2018 7:01:45 PM	35567
Copper	0.040	0.0010		mg/L	1	12/29/2017 12:57:04 PM	35567
Lead	0.022	0.00050	*	mg/L	1	12/29/2017 12:57:04 PM	35567
Selenium	0.018	0.0050		mg/L	5	1/3/2018 7:01:45 PM	35567
Thallium	ND	0.00050		mg/L	1	12/29/2017 12:57:04 PM	35567
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1600	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.19	0.10		mg/L	1	12/8/2017 7:26:40 PM	R47664
Chloride	350	10	*	mg/L	20	12/8/2017 7:39:05 PM	R47664
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	12/8/2017 7:39:05 PM	R47664
Bromide	1.4	0.10		mg/L	1	12/8/2017 7:26:40 PM	R47664
Nitrogen, Nitrate (As N)	3.0	0.10		mg/L	1	12/8/2017 7:26:40 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 7:39:05 PM	R47664
Sulfate	1900	25	*	mg/L	50	12/26/2017 5:23:22 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	5.0		µmhos/cm	1	12/12/2017 3:09:48 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	297.4	20.00		mg/L CaCO3	1	12/12/2017 3:09:48 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 3:09:48 AM	R47724
Total Alkalinity (as CaCO3)	297.4	20.00		mg/L CaCO3	1	12/12/2017 3:09:48 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3690	100	*D	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.84		H	pH units	1	12/12/2017 3:09:48 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Barium	0.28	0.0020		mg/L	1	12/21/2017 8:14:42 PM	35567
Beryllium	0.0028	0.0020		mg/L	1	12/26/2017 2:59:54 PM	35567
Cadmium	ND	0.0020		mg/L	1	12/26/2017 2:59:54 PM	35567
Calcium	550	50		mg/L	50	12/26/2017 3:09:32 PM	35567
Chromium	0.13	0.0060	*	mg/L	1	12/26/2017 2:59:54 PM	35567
Iron	40	1.0	*	mg/L	50	12/26/2017 3:09:32 PM	35567
Magnesium	55	1.0		mg/L	1	12/21/2017 8:14:42 PM	35567
Manganese	1.7	0.010	*	mg/L	5	12/26/2017 3:01:54 PM	35567
Nickel	0.10	0.010	*	mg/L	1	12/21/2017 8:14:42 PM	35567

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-005 **Matrix:** AQUEOUS

Client Sample ID: GBR-48
Collection Date: 12/7/2017 3:22:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Potassium	8.9	1.0		mg/L	1	12/21/2017 8:14:42 PM	35567
Silver	ND	0.0050		mg/L	1	12/26/2017 2:59:54 PM	35567
Sodium	620	50		mg/L	50	12/26/2017 3:09:32 PM	35567
Zinc	0.081	0.010		mg/L	1	12/26/2017 2:59:54 PM	35567
EPA METHOD 245.1: MERCURY						Analyst: **MED**	
Mercury	ND	0.00020	H	mg/L	1	1/30/2018 3:02:17 PM	36255
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Toluene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Ethylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Naphthalene	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
2-Methylnaphthalene	ND	4.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Acetone	ND	10		µg/L	1	12/15/2017 8:14:00 PM	R47832
Bromobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Bromodichloromethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Bromoform	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Bromomethane	ND	3.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
2-Butanone	ND	10		µg/L	1	12/15/2017 8:14:00 PM	R47832
Carbon disulfide	ND	10		µg/L	1	12/15/2017 8:14:00 PM	R47832
Carbon Tetrachloride	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Chlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Chloroethane	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Chloroform	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Chloromethane	ND	3.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
2-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
4-Chlorotoluene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
cis-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Dibromochloromethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Dibromomethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-48
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 3:22:00 PM
Lab ID: 1712475-005 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1-Dichloroethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1-Dichloroethene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,3-Dichloropropane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
2,2-Dichloropropane	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Hexachlorobutadiene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
2-Hexanone	ND	10		µg/L	1	12/15/2017 8:14:00 PM	R47832
Isopropylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
4-Isopropyltoluene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
4-Methyl-2-pentanone	ND	10		µg/L	1	12/15/2017 8:14:00 PM	R47832
Methylene Chloride	ND	3.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
n-Butylbenzene	ND	3.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
n-Propylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
sec-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Styrene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
tert-Butylbenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Tetrachloroethene (PCE)	1.3	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
trans-1,2-DCE	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Trichloroethene (TCE)	1.0	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Trichlorofluoromethane	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Vinyl chloride	ND	1.0		µg/L	1	12/15/2017 8:14:00 PM	R47832
Xylenes, Total	ND	1.5		µg/L	1	12/15/2017 8:14:00 PM	R47832
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/15/2017 8:14:00 PM	R47832
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	12/15/2017 8:14:00 PM	R47832
Surr: Dibromofluoromethane	99.2	70-130		%Rec	1	12/15/2017 8:14:00 PM	R47832
Surr: Toluene-d8	99.9	70-130		%Rec	1	12/15/2017 8:14:00 PM	R47832

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-50
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 3:35:00 PM
Lab ID: 1712475-006 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst: **DBK**	
Antimony	ND	0.0010		mg/L	1	1/3/2018 7:14:52 PM	35567
Arsenic	0.0057	0.0010		mg/L	1	1/2/2018 8:14:22 PM	35567
Copper	0.0082	0.0010		mg/L	1	12/29/2017 1:03:37 PM	35567
Lead	0.0024	0.00050		mg/L	1	12/29/2017 1:03:37 PM	35567
Selenium	0.0085	0.0010		mg/L	1	1/2/2018 8:14:22 PM	35567
Thallium	ND	0.00050		mg/L	1	12/29/2017 1:03:37 PM	35567
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1200	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.48	0.10		mg/L	1	12/8/2017 8:16:19 PM	R47664
Chloride	54	10		mg/L	20	12/8/2017 8:28:44 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 8:16:19 PM	R47664
Bromide	0.29	0.10		mg/L	1	12/8/2017 8:16:19 PM	R47664
Nitrogen, Nitrate (As N)	5.9	0.10		mg/L	1	12/8/2017 8:16:19 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 8:28:44 PM	R47664
Sulfate	1500	25	*	mg/L	50	12/26/2017 5:35:46 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3100	5.0		µmhos/cm	1	12/12/2017 3:24:06 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	208.0	20.00		mg/L CaCO3	1	12/12/2017 3:24:06 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 3:24:06 AM	R47724
Total Alkalinity (as CaCO3)	208.0	20.00		mg/L CaCO3	1	12/12/2017 3:24:06 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2590	40.0	*D	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.81		H	pH units	1	12/12/2017 3:24:06 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Barium	0.036	0.0020		mg/L	1	12/21/2017 8:16:39 PM	35567
Beryllium	ND	0.0020		mg/L	1	12/26/2017 3:11:21 PM	35567
Cadmium	ND	0.0020		mg/L	1	12/26/2017 3:11:21 PM	35567
Calcium	440	10		mg/L	10	12/26/2017 3:13:10 PM	35567
Chromium	0.16	0.0060	*	mg/L	1	12/26/2017 3:11:21 PM	35567
Iron	5.8	0.20	*	mg/L	10	12/26/2017 3:13:10 PM	35567
Magnesium	33	1.0		mg/L	1	12/21/2017 8:16:39 PM	35567
Manganese	0.32	0.0020	*	mg/L	1	12/26/2017 3:11:21 PM	35567
Nickel	0.083	0.010		mg/L	1	12/21/2017 8:16:39 PM	35567

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-50
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 3:35:00 PM
Lab ID: 1712475-006 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Potassium	2.4	1.0		mg/L	1	12/21/2017 8:16:39 PM	35567
Silver	0.0057	0.0050		mg/L	1	12/26/2017 3:11:21 PM	35567
Sodium	320	10		mg/L	10	12/26/2017 3:13:10 PM	35567
Zinc	0.020	0.010		mg/L	1	12/26/2017 3:11:21 PM	35567
EPA METHOD 245.1: MERCURY						Analyst: **MED**	
Mercury	ND	0.00020	H	mg/L	1	1/30/2018 3:04:13 PM	36255
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 9:32:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 9:32:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 9:32:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: GBR-50
Project: GBR Annual Sampling
Collection Date: 12/7/2017 3:35:00 PM
Lab ID: 1712475-006 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 9:32:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 9:32:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
sec-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Styrene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
tert-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 9:32:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 9:32:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/13/2017 9:32:00 PM	R47782
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/13/2017 9:32:00 PM	R47782
Surr: Dibromofluoromethane	99.4	70-130		%Rec	1	12/13/2017 9:32:00 PM	R47782
Surr: Toluene-d8	98.5	70-130		%Rec	1	12/13/2017 9:32:00 PM	R47782

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Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-007 **Matrix:** AQUEOUS

Client Sample ID: GBR-32
Collection Date: 12/7/2017 2:35:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: METALS						Analyst: **DBK**	
Antimony	ND	0.0010		mg/L	1	1/3/2018 7:27:59 PM	35567
Arsenic	ND	0.0050		mg/L	5	1/3/2018 7:21:25 PM	35567
Copper	0.0062	0.0010		mg/L	1	12/29/2017 1:10:11 PM	35567
Lead	0.00082	0.00050		mg/L	1	12/29/2017 1:10:11 PM	35567
Selenium	0.0055	0.0050		mg/L	5	1/3/2018 7:21:25 PM	35567
Thallium	ND	0.00050		mg/L	1	12/29/2017 1:10:11 PM	35567
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1500	6.6		mg/L	1	12/26/2017	R48016
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.18	0.10		mg/L	1	12/8/2017 8:41:09 PM	R47664
Chloride	290	10	*	mg/L	20	12/8/2017 8:53:33 PM	R47664
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/8/2017 8:41:09 PM	R47664
Bromide	0.87	0.10		mg/L	1	12/8/2017 8:41:09 PM	R47664
Nitrogen, Nitrate (As N)	1.2	0.10		mg/L	1	12/8/2017 8:41:09 PM	R47664
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/8/2017 8:53:33 PM	R47664
Sulfate	1600	25	*	mg/L	50	12/26/2017 6:13:01 PM	R48034
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4000	5.0		µmhos/cm	1	12/12/2017 3:35:40 AM	R47724
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	294.1	20.00		mg/L CaCO3	1	12/12/2017 3:35:40 AM	R47724
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/12/2017 3:35:40 AM	R47724
Total Alkalinity (as CaCO3)	294.1	20.00		mg/L CaCO3	1	12/12/2017 3:35:40 AM	R47724
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	3210	40.0	*D	mg/L	1	12/13/2017 9:25:00 AM	35443
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.84		H	pH units	1	12/12/2017 3:35:40 AM	R47724
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Barium	0.025	0.0020		mg/L	1	12/21/2017 8:18:31 PM	35567
Beryllium	ND	0.0020		mg/L	1	12/26/2017 3:15:08 PM	35567
Cadmium	ND	0.0020		mg/L	1	12/26/2017 3:15:08 PM	35567
Calcium	510	10		mg/L	10	12/26/2017 3:16:57 PM	35567
Chromium	0.13	0.0060	*	mg/L	1	12/26/2017 3:15:08 PM	35567
Iron	2.3	0.20	*	mg/L	10	12/26/2017 3:16:57 PM	35567
Magnesium	49	1.0		mg/L	1	12/21/2017 8:18:31 PM	35567
Manganese	1.2	0.020	*	mg/L	10	12/26/2017 3:16:57 PM	35567
Nickel	0.14	0.010	*	mg/L	1	12/21/2017 8:18:31 PM	35567

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712475-007 **Matrix:** AQUEOUS

Client Sample ID: GBR-32
Collection Date: 12/7/2017 2:35:00 PM
Received Date: 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Potassium	2.6	1.0		mg/L	1	12/21/2017 8:18:31 PM	35567
Silver	0.0070	0.0050		mg/L	1	12/26/2017 3:15:08 PM	35567
Sodium	560	10		mg/L	10	12/26/2017 3:16:57 PM	35567
Zinc	0.012	0.010		mg/L	1	12/26/2017 3:15:08 PM	35567
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 9:55:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 9:55:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 9:55:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-32
Project: GBR Annual Sampling **Collection Date:** 12/7/2017 2:35:00 PM
Lab ID: 1712475-007 **Matrix:** AQUEOUS **Received Date:** 12/8/2017 7:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 9:55:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 9:55:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
sec-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Styrene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
tert-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Tetrachloroethene (PCE)	1.1	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 9:55:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 9:55:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	12/13/2017 9:55:00 PM	R47782
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/13/2017 9:55:00 PM	R47782
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	12/13/2017 9:55:00 PM	R47782
Surr: Toluene-d8	98.1	70-130		%Rec	1	12/13/2017 9:55:00 PM	R47782

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

WO#: 1712475

ıll Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **MB-35567**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW**	Batch ID: **35567**	RunNo: **47970**
Prep Date: **12/18/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536801** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID **LLLCS-35567**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Metals**
Client ID: **BatchQC**	Batch ID: **35567**	RunNo: **47970**
) Date: **12/18/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536802** Units: **mg/L**

..ıalyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020	0.002000	0	92.5	50	150			
Beryllium	ND	0.0020	0.002000	0	92.0	50	150			
Cadmium	0.0025	0.0020	0.002000	0	125	50	150			
Calcium	ND	1.0	0.5000	0	97.7	50	150			
Chromium	ND	0.0060	0.006000	0	83.0	50	150			
Iron	ND	0.020	0.02000	0	66.8	50	150			
Magnesium	ND	1.0	0.5000	0	97.7	50	150			
Manganese	ND	0.0020	0.002000	0	96.5	50	150			
Nickel	ND	0.010	0.005000	0	73.4	50	150			
Potassium	ND	1.0	0.5000	0	94.0	50	150			
Silver	ND	0.0050	0.005000	0	97.6	50	150			
Sodium	ND	1.0	0.5000	0	108	50	150			
Zinc	ND	0.010	0.005000	0	129	50	150			

Sample ID **LCS-35567**	SampType: **LCS**	TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW**	Batch ID: **35567**	RunNo: **47970**
Prep Date: **12/18/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.0020	0.5000	0	97.7	85	115			
Beryllium	0.49	0.0020	0.5000	0	98.8	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **LCS-35567** SampType: **LCS** TestCode: **EPA Method 200.7: Metals**

Client ID: **LCSW** Batch ID: **35567** RunNo: **47970**

Prep Date: **12/18/2017** Analysis Date: **12/21/2017** SeqNo: **1536803** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Cadmium	0.52	0.0020	0.5000	0	103	85	115			
Calcium	46	1.0	50.00	0	92.1	85	115			
Chromium	0.48	0.0060	0.5000	0	95.3	85	115			
Iron	0.47	0.020	0.5000	0	94.7	85	115			
Magnesium	48	1.0	50.00	0	95.2	85	115			
Manganese	0.46	0.0020	0.5000	0	92.9	85	115			
Nickel	0.47	0.010	0.5000	0	93.7	85	115			
Potassium	47	1.0	50.00	0	93.4	85	115			
Silver	0.11	0.0050	0.1000	0	108	85	115			
Sodium	47	1.0	50.00	0	93.1	85	115			
Zinc	0.47	0.010	0.5000	0	93.2	85	115			

Sample ID **MB-B** SampType: **MBLK** TestCode: **EPA Method 200.7: Metals**

Client ID: **PBW** Batch ID: **B48016** RunNo: **48016**

Prep Date: Analysis Date: **12/26/2017** SeqNo: **1539019** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID **LLLCS-B** SampType: **LCSLL** TestCode: **EPA Method 200.7: Metals**

Client ID: **BatchQC** Batch ID: **B48016** RunNo: **48016**

Prep Date: Analysis Date: **12/26/2017** SeqNo: **1539020** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	106	50	150			
Iron	ND	0.020	0.02000	0	95.5	50	150			
Magnesium	ND	1.0	0.5000	0	103	50	150			
Manganese	ND	0.0020	0.002000	0	95.0	50	150			
Potassium	ND	1.0	0.5000	0	103	50	150			
Sodium	ND	1.0	0.5000	0	104	50	150			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712475**

Hall Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **LCS-B**	SampType: **LCS**	TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW**	Batch ID: **B48016**	RunNo: **48016**
Prep Date:	Analysis Date: **12/26/2017**	SeqNo: **1539021** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	101	85	115			
Iron	0.48	0.020	0.5000	0	97.0	85	115			
Magnesium	51	1.0	50.00	0	101	85	115			
Manganese	0.46	0.0020	0.5000	0	91.7	85	115			
Potassium	49	1.0	50.00	0	98.0	85	115			
Sodium	48	1.0	50.00	0	95.8	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**MB-35567**	SampType:	**MBLK**	TestCode:	**EPA 200.8: Metals**
Client ID:	**PBW**	Batch ID:	**35567**	RunNo:	**48033**
Prep Date:	**12/18/2017**	Analysis Date:	**12/22/2017**	SeqNo:	**1539280** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Copper	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Thallium	ND	0.00050								

Sample ID	**MSLLLCS-35567**	SampType:	**LCSLL**	TestCode:	**EPA 200.8: Metals**
Client ID:	**BatchQC**	Batch ID:	**35567**	RunNo:	**48033**
Prep Date:	**12/18/2017**	Analysis Date:	**12/22/2017**	SeqNo:	**1539281** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010	0.001000	0	99.3	50	150			
Arsenic	0.0010	0.0010	0.001000	0	100	50	150			
Copper	ND	0.0010	0.001000	0	88.4	50	150			
Lead	ND	0.00050	0.0005000	0	97.1	50	150			
Selenium	ND	0.0010	0.001000	0	84.4	50	150			
Thallium	ND	0.00050	0.0005000	0	95.8	50	150			

Sample ID	**MSLCS-35567**	SampType:	**LCS**	TestCode:	**EPA 200.8: Metals**
Client ID:	**LCSW**	Batch ID:	**35567**	RunNo:	**48033**
Prep Date:	**12/18/2017**	Analysis Date:	**12/22/2017**	SeqNo:	**1539282** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.030	0.0010	0.02500	0	121	85	115			S
Arsenic	0.025	0.0010	0.02500	0	102	85	115			
Copper	0.025	0.0010	0.02500	0	98.9	85	115			
Lead	0.013	0.00050	0.01250	0	101	85	115			
Selenium	0.024	0.0010	0.02500	0	94.3	85	115			
Thallium	0.013	0.00050	0.01250	0	101	85	115			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712475**

Hall Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**MB-36255**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**36255**	RunNo:	**48782**					
Prep Date:	**1/30/2018**	Analysis Date:	**1/30/2018**	SeqNo:	**1569813**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-36255**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**36255**	RunNo:	**48782**					
Prep Date:	**1/30/2018**	Analysis Date:	**1/30/2018**	SeqNo:	**1569814**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.4	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R47664**	RunNo: **47664**
Prep Date:	Analysis Date: **12/8/2017**	SeqNo: **1523111** 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								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R47664**	RunNo: **47664**
Prep Date:	Analysis Date: **12/8/2017**	SeqNo: **1523112** 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	103	90	110			
Chloride	4.8	0.50	5.000	0	96.5	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	99.2	90	110			
Bromide	2.5	0.10	2.500	0	100	90	110			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R48034**	RunNo: **48034**
Prep Date:	Analysis Date: **12/26/2017**	SeqNo: **1539440** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R48034**	RunNo: **48034**
Prep Date:	Analysis Date: **12/26/2017**	SeqNo: **1539441** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.9	0.50	10.00	0	98.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712475**

ll Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **100ng lcs** SampType: **LCS** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW** Batch ID: **R47782** RunNo: **47782**
Prep Date: Analysis Date: **12/13/2017** SeqNo: **1527833** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	110	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID **rb** SampType: **MBLK** TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW** Batch ID: **R47782** RunNo: **47782**
Prep Date: Analysis Date: **12/13/2017** SeqNo: **1527834** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
·ne	ND	1.0								
·nzene	ND	1.0								
·yl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527834** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527834** 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	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.8	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R47832**	RunNo: **47832**
Prep Date:	Analysis Date: **12/15/2017**	SeqNo: **1530010** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.7	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	107	70	130			
Trichloroethene (TCE)	20	1.0	20.00	0	97.9	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47832**	RunNo: **47832**
Prep Date:	Analysis Date: **12/15/2017**	SeqNo: **1530011** 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
- J Not Detected at the Reporting Limit
- PQL Practical Quanitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47832**	RunNo: **47832**
Prep Date:	Analysis Date: **12/15/2017**	SeqNo: **1530011** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

WO#: 1712475

ll Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47832**	RunNo: **47832**
Prep Date:	Analysis Date: **12/15/2017**	SeqNo: **1530011** 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		102	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.9	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.8	70	130			
rr: Toluene-d8	9.9		10.00		98.7	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **lcs-35504** SampType: **LCS** TestCode: **EPA Method 8270C: PAHs**

Client ID: **LCSW** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	14	0.50	20.00	0	68.8	28.6	113			
1-Methylnaphthalene	14	0.50	20.00	0	67.9	27	113			
2-Methylnaphthalene	13	0.50	20.00	0	66.3	26.3	112			
Acenaphthylene	13	0.50	20.00	0	65.6	36.2	114			
Acenaphthene	13	0.50	20.00	0	65.8	35.6	116			
Fluorene	14	0.50	20.00	0	67.7	38.4	116			
Phenanthrene	14	0.50	20.00	0	72.1	42.3	118			
Anthracene	14	0.50	20.00	0	69.7	42.2	117			
Fluoranthene	15	0.50	20.00	0	73.7	42.5	118			
Pyrene	14	0.50	20.00	0	67.5	40.8	121			
Benz(a)anthracene	14	0.50	20.00	0	71.5	43	118			
Chrysene	12	0.50	20.00	0	57.5	39.4	119			
Benzo(b)fluoranthene	15	0.50	20.00	0	73.1	47.8	115			
Benzo(k)fluoranthene	13	0.50	20.00	0	66.7	40.5	120			
Benzo(a)pyrene	14	0.50	20.00	0	68.6	41.5	115			
Dibenz(a,h)anthracene	14	0.50	20.00	0	70.4	48.6	115			
Benzo(g,h,i)perylene	14	0.50	20.00	0	68.6	42	119			
Indeno(1,2,3-cd)pyrene	14	0.50	20.00	0	68.2	42.9	118			
Surr: N-hexadecane	60		87.60		68.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		70.1	28.2	137			

Sample ID **mb-35504** SampType: **MBLK** TestCode: **EPA Method 8270C: PAHs**

Client ID: **PBW** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Acenaphthylene	ND	0.50								
Acenaphthene	ND	0.50								
Fluorene	ND	0.50								
Phenanthrene	ND	0.50								
Anthracene	ND	0.50								
Fluoranthene	ND	0.50								
Pyrene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Chrysene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Surr: N-hexadecane	61		87.60		69.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		71.7	28.2	137			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	lcs-1 ~20uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R47724		RunNo:	47724				
Prep Date:		Analysis Date:	12/11/2017		SeqNo:	1525679	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.96	0	110	80	120			

Sample ID	lcs-2 ~20uS eC	SampType:	LCS		TestCode:	SM2510B: Specific Conductance				
Client ID:	LCSW	Batch ID:	R47724		RunNo:	47724				
Prep Date:		Analysis Date:	12/11/2017		SeqNo:	1525702	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	25	5.0	19.96	0	125	80	120			S

Sample ID	1712475-001c dup	SampType:	DUP		TestCode:	SM2510B: Specific Conductance				
Client ID:	GBR-51	Batch ID:	R47724		RunNo:	47724				
Prep Date:		Analysis Date:	12/12/2017		SeqNo:	1525718	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	2700	5.0						0.697	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **1712475-001c dup**	SampType: **DUP**	TestCode: **SM4500-H+B: pH**							
Client ID: **GBR-51**	Batch ID: **R47724**	RunNo: **47724**							
Prep Date:	Analysis Date: **12/12/2017**	SeqNo: **1525670**	Units: **pH units**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.66									H

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712475**

31-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R47724**	RunNo: **47724**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1525726** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R47724**	RunNo: **47724**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1525727** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.80	20.00	80.00	0	98.5	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R47724**	RunNo: **47724**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1525750** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R47724**	RunNo: **47724**
Prep Date:	Analysis Date: **12/11/2017**	SeqNo: **1525751** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.44	20.00	80.00	0	98.0	90	110			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712475**

ll Environmental Analysis Laboratory, Inc.

31-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **MB-35443**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **35443**	RunNo: **47725**
Prep Date: **12/11/2017**	Analysis Date: **12/13/2017**	SeqNo: **1525834** 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-35443**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **35443**	RunNo: **47725**
Prep Date: **12/11/2017**	Analysis Date: **12/13/2017**	SeqNo: **1525835** 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			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
⌐	Sample Diluted Due to Matrix	E	Value above quantitation range
	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
⌡	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1712475 RcptNo: 1

Received By: Anne Thorne 12/8/2017 7:55:00 AM Anne Thorne

Completed By: Sophia Campuzano 12/8/2017 9:11:56 AM

Reviewed By: 12/08/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 ~~#66~~ 84 County Rd. 4990
Farmington, NM 87413
Phone #: 505-632-4166
email or Fax#: kelly.Robinson@andeavor.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☒ EDD (Type) PDF

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: GBR Annual Sampling
Project #: WR 1009
Project Manager: Devin Hencmann
Sampler: EC + JA
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712475	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	See Attached				Air Bubbles (Y or N)
12-7-17	11:55	GW	GBR-51	3 VOAA, 1500ml 1250 ml, 1100 ml	HCl, HNO_3 H_2SO_4	-001												X				
	12:00		GBR-52	↓	↓	-002												X				
	13:40		GBR-49	↓	↓	-003												X				
	1430		GBR-17	3 VOAA, 1 Ziplock 1300 ml, 1250 ml	HCl, HNO_3 H_2SO_4	-004												X				
	1522		GBR-48	3 VOAA, 1500 ml 1250 ml, 1100 ml	HCl HNO_3 H_2SO_4	-005												X				
↓	1535	↓	GBR-50	↓	↓	-006												X				
12/07			GBR-32			-007																

Date	Time	Relinquished by:	Received by:	Date	Time
12/7/17	16:30			12/7/17	1634
12/8/17	7:00			12/08/17	0755

Remarks: Please CC: aagur@itenv.com
dhencmann@itenv.com

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

TABLE 1

2015 SAMPLING SCHEDULE
FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING

Sample ID	ANNUALLY (Jan)
System Influent	VOC GWC
System Effluent	VOC GWC METALS PAH
GRW-3	VOC GWC PAH
GRW-6	VOC GWC PAH
GBR-17	VOC GWC PAH
GBR-24D	VOC GWC PAH
GBR-30	VOC GWC PAH
GBR-31	VOC GWC PAH
GBR-32	VOC GWC METALS
GBR-48	VOC GWC METALS
GBR-49	VOC GWC METALS
GBR-50	VOC GWC METALS
GBR-51	VOC GWC
GBR-52	VOC GWC
SHS-8	VOC GWC

Notes.

VOC
method 8260

PAH
method 8270

GWC
pH
EC
TDS
alkalinity
hardness
anions
bromide
chloride
sulfate
fluoride
nitrate/nitrite
phosporus
cations
calcium
iron
magnesium
manganese
potassium
sodium

Metals
barium
beryllium
cadmium
chromium
copper
lead
nickel
silver
zinc
antimony
arsenic
selenium
thallium
mercury

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 12, 2018

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL:
FAX

RE: GBR Annual Sampling OrderNo.: 1712534

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 12/9/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Case Narrative

WO#: **1712534**
Date: **1/12/2018**

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Analytical Notes Regarding the TDS result for sample SHS-8:
During the final of the report it was noticed that the reported TDS value did not agree with the anion and eC data for this sample. TDS was reanalzyed, past the holding time, and reported. The reanalzyed TDS value matches up very well with the reported anion and eC data.

Analytical Report
Lab Order **1712534**
Date Reported: **1/12/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-31
Collection Date: 12/8/2017 11:20:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1200	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.34	0.10		mg/L	1	12/15/2017 5:12:06 AM	A47810
Chloride	93	10		mg/L	20	12/15/2017 5:24:30 AM	A47810
Bromide	0.41	0.10		mg/L	1	12/15/2017 5:12:06 AM	A47810
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	12/15/2017 5:24:30 AM	A47810
Sulfate	1700	25	*	mg/L	50	12/27/2017 8:01:19 PM	R48068
Nitrate+Nitrite as N	3.4	1.0		mg/L	5	12/15/2017 6:51:22 AM	A47810
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3400	5.0		µmhos/cm	1	12/13/2017 3:48:05 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	239.1	20.00		mg/L CaCO3	1	12/13/2017 3:48:05 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 3:48:05 PM	R47803
Total Alkalinity (as CaCO3)	239.1	20.00		mg/L CaCO3	1	12/13/2017 3:48:05 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	2940	100	*D	mg/L	1	12/15/2017 1:58:00 PM	35453
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.34		H	pH units	1	12/13/2017 3:48:05 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	430	5.0		mg/L	5	1/2/2018 4:37:28 PM	35732
Iron	21	1.0	*	mg/L	50	1/2/2018 4:39:15 PM	35732
Magnesium	40	1.0		mg/L	1	12/29/2017 6:49:04 PM	35732
Manganese	4.2	0.010	*	mg/L	5	1/2/2018 4:37:28 PM	35732
Potassium	6.0	1.0		mg/L	1	12/29/2017 6:49:04 PM	35732
Sodium	430	5.0		mg/L	5	1/2/2018 4:37:28 PM	35732
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Naphthalene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Acenaphthene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Fluorene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Phenanthrene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Anthracene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Pyrene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-31
Collection Date: 12/8/2017 11:20:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Benz(a)anthracene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Chrysene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/15/2017 10:13:51 PM	35504
Surr: N-hexadecane	80.4	18.7-145		%Rec	1	12/15/2017 10:13:51 PM	35504
Surr: Benzo(e)pyrene	92.7	28.2-137		%Rec	1	12/15/2017 10:13:51 PM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 10:19:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 10:19:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 10:19:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782

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Qualifiers:

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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-31
Collection Date: 12/8/2017 11:20:00 AM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 10:19:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 10:19:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
sec-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Styrene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
tert-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 10:19:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 10:19:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/13/2017 10:19:00 PM	R47782
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	12/13/2017 10:19:00 PM	R47782

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Qualifiers:

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H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: GBR-31
Project: GBR Annual Sampling
Collection Date: 12/8/2017 11:20:00 AM
Lab ID: 1712534-001 **Matrix:** AQUEOUS **Received Date:** 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: Dibromofluoromethane	101	70-130		%Rec	1	12/13/2017 10:19:00 PM	R47782
Surr: Toluene-d8	97.1	70-130		%Rec	1	12/13/2017 10:19:00 PM	R47782

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** SHS-8
Project: GBR Annual Sampling **Collection Date:** 12/8/2017 12:30:00 PM
Lab ID: 1712534-002 **Matrix:** AQUEOUS **Received Date:** 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1000	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.37	0.10		mg/L	1	12/15/2017 5:36:55 AM	A47810
Chloride	110	10		mg/L	20	12/15/2017 5:49:20 AM	A47810
Bromide	0.78	0.10		mg/L	1	12/15/2017 5:36:55 AM	A47810
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	12/15/2017 5:49:20 AM	A47810
Sulfate	1200	25	*	mg/L	50	12/27/2017 8:13:43 PM	R48068
Nitrate+Nitrite as N	ND	1.0		mg/L	5	12/15/2017 7:03:47 AM	A47810
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	5.0		µmhos/cm	1	12/13/2017 4:01:18 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	751.8	20.00		mg/L CaCO3	1	12/13/2017 4:01:18 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 4:01:18 PM	R47803
Total Alkalinity (as CaCO3)	751.8	20.00		mg/L CaCO3	1	12/13/2017 4:01:18 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2730	100	*HD,	mg/L	1	1/11/2018 4:51:00 PM	35970
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.22		H	pH units	1	12/13/2017 4:01:18 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	320	10		mg/L	10	1/2/2018 4:41:07 PM	35732
Iron	10	0.40	*	mg/L	20	1/3/2018 9:39:35 PM	35732
Magnesium	49	1.0		mg/L	1	12/29/2017 6:51:28 PM	35732
Manganese	3.6	0.020	*	mg/L	10	1/2/2018 4:41:07 PM	35732
Potassium	2.1	1.0		mg/L	1	12/29/2017 6:51:28 PM	35732
Sodium	520	10		mg/L	10	1/2/2018 4:41:07 PM	35732
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 10:42:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-002 **Matrix:** AQUEOUS

Client Sample ID: SHS-8
Collection Date: 12/8/2017 12:30:00 PM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 10:42:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 10:42:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 10:42:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 10:42:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 10:42:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
sec-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-002 **Matrix:** AQUEOUS

Client Sample ID: SHS-8
Collection Date: 12/8/2017 12:30:00 PM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Styrene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
tert-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 10:42:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 10:42:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	12/13/2017 10:42:00 PM	R47782
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/13/2017 10:42:00 PM	R47782
Surr: Dibromofluoromethane	101	70-130		%Rec	1	12/13/2017 10:42:00 PM	R47782
Surr: Toluene-d8	97.6	70-130		%Rec	1	12/13/2017 10:42:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GRW-3
Project: GBR Annual Sampling **Collection Date:** 12/8/2017 3:30:00 PM
Lab ID: 1712534-003 **Matrix:** AQUEOUS **Received Date:** 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1100	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	ND	0.10		mg/L	1	12/15/2017 6:26:33 AM	A47810
Chloride	74	10		mg/L	20	12/15/2017 6:38:57 AM	A47810
Bromide	0.38	0.10		mg/L	1	12/15/2017 6:26:33 AM	A47810
Phosphorus, Orthophosphate (As P)	ND	10	H	mg/L	20	12/15/2017 6:38:57 AM	A47810
Sulfate	1400	25	*	mg/L	50	12/27/2017 8:26:07 PM	R48068
Nitrate+Nitrite as N	ND	1.0		mg/L	5	12/15/2017 7:16:11 AM	A47810
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3600	5.0		µmhos/cm	1	12/13/2017 4:30:25 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	761.1	20.00		mg/L CaCO3	1	12/13/2017 4:30:25 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 4:30:25 PM	R47803
Total Alkalinity (as CaCO3)	761.1	20.00		mg/L CaCO3	1	12/13/2017 4:30:25 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	2920	100	*D	mg/L	1	12/15/2017 1:58:00 PM	35453
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.32		H	pH units	1	12/13/2017 4:30:25 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	320	5.0		mg/L	5	1/2/2018 4:43:04 PM	35732
Iron	54	2.0	*	mg/L	100	1/3/2018 9:50:41 PM	35732
Magnesium	62	1.0		mg/L	1	12/29/2017 6:53:19 PM	35732
Manganese	1.9	0.010	*	mg/L	5	1/2/2018 4:43:04 PM	35732
Potassium	1.3	1.0		mg/L	1	12/29/2017 6:53:19 PM	35732
Sodium	520	10		mg/L	10	1/2/2018 4:44:53 PM	35732
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Naphthalene	0.96	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Acenaphthene	0.82	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Fluorene	3.9	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Phenanthrene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Anthracene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Pyrene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GRW-3
Project: GBR Annual Sampling **Collection Date:** 12/8/2017 3:30:00 PM
Lab ID: 1712534-003 **Matrix:** AQUEOUS **Received Date:** 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Benz(a)anthracene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Chrysene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/15/2017 10:38:01 PM	35504
Surr: N-hexadecane	48.4	18.7-145		%Rec	1	12/15/2017 10:38:01 PM	35504
Surr: Benzo(e)pyrene	52.7	28.2-137		%Rec	1	12/15/2017 10:38:01 PM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 11:06:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 11:06:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 11:06:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-003 **Matrix:** AQUEOUS

Client Sample ID: GRW-3
Collection Date: 12/8/2017 3:30:00 PM
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 11:06:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 11:06:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
sec-Butylbenzene	1.5	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Styrene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
tert-Butylbenzene	3.4	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 11:06:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 11:06:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	12/13/2017 11:06:00 PM	R47782
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	12/13/2017 11:06:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: GRW-3
Project: GBR Annual Sampling
Collection Date: 12/8/2017 3:30:00 PM
Lab ID: 1712534-003
Matrix: AQUEOUS
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: Dibromofluoromethane	103	70-130		%Rec	1	12/13/2017 11:06:00 PM	R47782
Surr: Toluene-d8	97.2	70-130		%Rec	1	12/13/2017 11:06:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712534-004 **Matrix:** AQUEOUS

Client Sample ID: Trip Blank
Collection Date:
Received Date: 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Toluene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Ethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Naphthalene	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
2-Methylnaphthalene	ND	4.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Acetone	ND	10		µg/L	1	12/13/2017 11:30:00 PM	R47782
Bromobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Bromodichloromethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Bromoform	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Bromomethane	ND	3.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
2-Butanone	ND	10		µg/L	1	12/13/2017 11:30:00 PM	R47782
Carbon disulfide	ND	10		µg/L	1	12/13/2017 11:30:00 PM	R47782
Carbon Tetrachloride	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Chlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Chloroethane	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Chloroform	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Chloromethane	ND	3.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
2-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
4-Chlorotoluene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
cis-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Dibromochloromethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Dibromomethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1-Dichloroethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1-Dichloroethene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,3-Dichloropropane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
2,2-Dichloropropane	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Trip Blank
Project: GBR Annual Sampling
Collection Date:
Lab ID: 1712534-004 **Matrix:** AQUEOUS **Received Date:** 12/9/2017 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,1-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Hexachlorobutadiene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
2-Hexanone	ND	10		µg/L	1	12/13/2017 11:30:00 PM	R47782
Isopropylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
4-Isopropyltoluene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
4-Methyl-2-pentanone	ND	10		µg/L	1	12/13/2017 11:30:00 PM	R47782
Methylene Chloride	ND	3.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
n-Butylbenzene	ND	3.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
n-Propylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
sec-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Styrene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
tert-Butylbenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
trans-1,2-DCE	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Trichlorofluoromethane	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Vinyl chloride	ND	1.0		µg/L	1	12/13/2017 11:30:00 PM	R47782
Xylenes, Total	ND	1.5		µg/L	1	12/13/2017 11:30:00 PM	R47782
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	12/13/2017 11:30:00 PM	R47782
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	12/13/2017 11:30:00 PM	R47782
Surr: Dibromofluoromethane	102	70-130		%Rec	1	12/13/2017 11:30:00 PM	R47782
Surr: Toluene-d8	98.4	70-130		%Rec	1	12/13/2017 11:30:00 PM	R47782

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

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**MB-35732**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**PBW**	Batch ID:	**35732**	RunNo:	**48109**				
Prep Date:	**12/27/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542638**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LLLCS-35732**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**BatchQC**	Batch ID:	**35732**	RunNo:	**48109**				
Prep Date:	**12/27/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542639**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	102	50	150			
Iron	0.020	0.020	0.02000	0	101	50	150			
Magnesium	ND	1.0	0.5000	0	103	50	150			
Manganese	0.0020	0.0020	0.002000	0	102	50	150			
Potassium	ND	1.0	0.5000	0	99.4	50	150			
Sodium	ND	1.0	0.5000	0	97.4	50	150			

Sample ID	**LCS-35732**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**LCSW**	Batch ID:	**35732**	RunNo:	**48109**				
Prep Date:	**12/27/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542640**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.5	85	115			
Iron	0.50	0.020	0.5000	0	99.1	85	115			
Magnesium	51	1.0	50.00	0	101	85	115			
Manganese	0.49	0.0020	0.5000	0	97.4	85	115			
Potassium	50	1.0	50.00	0	99.4	85	115			
Sodium	50	1.0	50.00	0	100	85	115			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712534**

all Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW** Batch ID: **A47810** RunNo: **47810**
Prep Date: Analysis Date: **12/15/2017** SeqNo: **1529397** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **A47810** RunNo: **47810**
Prep Date: Analysis Date: **12/15/2017** SeqNo: **1529398** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	105	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Bromide	2.4	0.10	2.500	0	97.4	90	110			
Phosphorus, Orthophosphate (As P	5.1	0.50	5.000	0	102	90	110			
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.5	90	110			

nple ID **MB** SampType: **mblk** TestCode: **EPA Method 300.0: Anions**
ient ID: **PBW** Batch ID: **R48068** RunNo: **48068**
Prep Date: Analysis Date: **12/27/2017** SeqNo: **1540705** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS** SampType: **lcs** TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW** Batch ID: **R48068** RunNo: **48068**
Prep Date: Analysis Date: **12/27/2017** SeqNo: **1540706** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	99.8	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527833** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Chlorobenzene	21	1.0	20.00	0	104	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	110	70	130			
Trichloroethene (TCE)	21	1.0	20.00	0	104	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		100	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		98.3	70	130			

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527834** 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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QC SUMMARY REPORT

WO#: **1712534**

Hall Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527834** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
·chlorobutadiene	ND	1.0								
.anone	ND	10								
ısopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **rb**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47782**	RunNo: **47782**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527834** 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	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.8	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	9.8		10.00		97.7	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

WO#: **1712534**

Hall Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **lcs-35504**	SampType: **LCS**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **LCSW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	14	0.50	20.00	0	68.8	28.6	113			
1-Methylnaphthalene	14	0.50	20.00	0	67.9	27	113			
2-Methylnaphthalene	13	0.50	20.00	0	66.3	26.3	112			
Acenaphthylene	13	0.50	20.00	0	65.6	36.2	114			
Acenaphthene	13	0.50	20.00	0	65.8	35.6	116			
Fluorene	14	0.50	20.00	0	67.7	38.4	116			
Phenanthrene	14	0.50	20.00	0	72.1	42.3	118			
Anthracene	14	0.50	20.00	0	69.7	42.2	117			
Fluoranthene	15	0.50	20.00	0	73.7	42.5	118			
Pyrene	14	0.50	20.00	0	67.5	40.8	121			
Benz(a)anthracene	14	0.50	20.00	0	71.5	43	118			
Chrysene	12	0.50	20.00	0	57.5	39.4	119			
Benzo(b)fluoranthene	15	0.50	20.00	0	73.1	47.8	115			
Benzo(k)fluoranthene	13	0.50	20.00	0	66.7	40.5	120			
Benzo(a)pyrene	14	0.50	20.00	0	68.6	41.5	115			
Dibenz(a,h)anthracene	14	0.50	20.00	0	70.4	48.6	115			
·o(g,h,i)perylene	14	0.50	20.00	0	68.6	42	119			
o(1,2,3-cd)pyrene	14	0.50	20.00	0	68.2	42.9	118			
Surr: N-hexadecane	60		87.60		68.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		70.1	28.2	137			

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Acenaphthylene	ND	0.50								
Acenaphthene	ND	0.50								
Fluorene	ND	0.50								
Phenanthrene	ND	0.50								
Anthracene	ND	0.50								
Fluoranthene	ND	0.50								
Pyrene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Chrysene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Surr: N-hexadecane	61		87.60		69.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		71.7	28.2	137			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712534**

ıll Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R47803**		RunNo: **47803**						
Prep Date:		Analysis Date: **12/13/2017**		SeqNo: **1528860**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.96	0	110	80	120			

Sample ID	**1712534-003b dup**	SampType: **DUP**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**GRW-3**	Batch ID: **R47803**		RunNo: **47803**						
Prep Date:		Analysis Date: **12/13/2017**		SeqNo: **1528874**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		3500	5.0						1.04	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**1712534-003b dup**	SampType: **DUP**		TestCode: **SM4500-H+B: pH**					
Client ID:	**GRW-3**	Batch ID: **R47803**		RunNo: **47803**					
Prep Date:		Analysis Date: **12/13/2017**		SeqNo: **1528931**		Units: **pH units**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.33									H

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712534**

Hall Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**mb-1 alk**	SampType: **MBLK**			TestCode: **SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID: **R47803**			RunNo: **47803**					
Prep Date:		Analysis Date: **12/13/2017**			SeqNo: **1528814**		Units: **mg/L CaCO3**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	**lcs-1 alk**	SampType: **LCS**			TestCode: **SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID: **R47803**			RunNo: **47803**					
Prep Date:		Analysis Date: **12/13/2017**			SeqNo: **1528815**		Units: **mg/L CaCO3**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		78.32	20.00	80.00	0	97.9	90	110			

Sample ID	**mb-2 alk**	SampType: **MBLK**			TestCode: **SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID: **R47803**			RunNo: **47803**					
Prep Date:		Analysis Date: **12/13/2017**			SeqNo: **1528838**		Units: **mg/L CaCO3**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		ND	20.00								

Sample ID	**lcs-2 alk**	SampType: **LCS**			TestCode: **SM2320B: Alkalinity**					
nt ID:	**LCSW**	Batch ID: **R47803**			RunNo: **47803**					
ep Date:		Analysis Date: **12/13/2017**			SeqNo: **1528839**		Units: **mg/L CaCO3**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)		78.56	20.00	80.00	0	98.2	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 Detection Limit
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712534**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **MB-35453**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **35453**	RunNo: **47834**
Prep Date: **12/12/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530070** 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-35453**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **35453**	RunNo: **47834**
Prep Date: **12/12/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530071** 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			

Sample ID **MB-35970**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **35970**	RunNo: **48377**
Prep Date: **1/10/2018**	Analysis Date: **1/11/2018**	SeqNo: **1554523** 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-35970**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **35970**	RunNo: **48377**
Prep Date: **1/10/2018**	Analysis Date: **1/11/2018**	SeqNo: **1554524** 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			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1712534 RcptNo: 1

Received By: Sophia Campuzano 12/9/2017 9:30:00 AM

Completed By: Ashley Gallegos 12/11/2017 9:24:46 AM

Reviewed By: DDS 12/11/17

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: 6
(<2 or >12 unless noted)
Adjusted? ND
Checked by: JMO

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

17. Additional remarks

18. Cooler Information

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

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Farmington, NM 8413
Phone #:
email or Fax#: Kelly.robinson@andeavor.com
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
~~☐ Standard~~ ☐ Rush
Project Name: GBR annual sampling
Project #: WR1004
Project Manager: Devin Hencmann
Sampler: Josh Adams
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.9 + 0.2(CF) = 2.1

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712534	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles (Y or N)
12-17	1120	GW	GBR-31	3 VOAs, 1 500mL, 1 250mL, 1 100mL, 1 Na2S2O3	HCL H2SO4 HNO3	-001												X	X			
	1230		SHS-8	3 VOAs, 1 1000, 1 250, 1 100	HCL H2SO4 HNO3	-002												X	X			
↓	1530	↓	GRW-3	↓	↓	-003												X	X			
no ~~12 0417~~		12/11/17	TRIP BLANK IMO	2 VOAs	HCl	-004												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-17	1520	Josh Adams		12/8/17	1520
12/8/17	1407			12/8/17	1007

Remarks: See attached

If ne... samples submitted to Hall Environmental may be subcontracted to other accredited laboratories ...s as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic...

TABLE 1

2015 SAMPLING SCHEDULE
FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING

Sample ID	ANNUALLY (Jan)
System Influent	VOC GWC
System Effluent	VOC GWC METALS PAH
GRW-3	VOC GWC PAH
GRW-6	VOC GWC PAH
GBR-17	VOC GWC PAH
GBR-24D	VOC GWC PAH
GBR-30	VOC GWC PAH
GBR-31	VOC GWC PAH
GBR-32	VOC GWC METALS
GBR-48	VOC GWC METALS
GBR-49	VOC GWC METALS
GBR-50	VOC GWC METALS
GBR-51	VOC GWC
GBR-52	VOC GWC
SHS-8	VOC GWC

Notes

VOC
method 8260

PAH
method 8270

GWC
pH
EC
TDS
alkalinity
hardness
anions
bromide
chloride
sulfate
fluoride
nitrate/nitrite
phosporus
cations
calcium
iron
magnesium
manganese
potassium
sodium

Metals
barium
beryllium
cadmium
chromium
copper
lead
nickel
silver
zinc
antimony
arsenic
selenium
thallium
mercury

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 10, 2018

Kelly Robinson

Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL:
FAX

RE: GBR Annual Sampling OrderNo.: 1712747

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/13/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1712747**
Date Reported: **1/10/2018**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712747-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-30
Collection Date: 12/12/2017 1:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1200	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	0.86	0.10		mg/L	1	12/13/2017 3:07:18 PM	R47783
Chloride	220	10		mg/L	20	12/13/2017 3:19:43 PM	R47783
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/13/2017 3:07:18 PM	R47783
Bromide	0.83	0.10		mg/L	1	12/13/2017 3:07:18 PM	R47783
Nitrogen, Nitrate (As N)	5.1	0.10		mg/L	1	12/13/2017 3:07:18 PM	R47783
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/13/2017 3:19:43 PM	R47783
Sulfate	1300	25	*	mg/L	50	12/28/2017 12:59:09 AM	A48068
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3200	5.0		µmhos/cm	1	12/13/2017 10:12:21 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	222.5	20.00		mg/L CaCO3	1	12/13/2017 10:12:21 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 10:12:21 PM	R47803
Total Alkalinity (as CaCO3)	222.5	20.00		mg/L CaCO3	1	12/13/2017 10:12:21 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	2770	40.0	*D	mg/L	1	12/21/2017 10:34:00 AM	35599
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.47		H	pH units	1	12/13/2017 10:12:21 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	400	5.0		mg/L	5	1/2/2018 5:33:48 PM	35764
Iron	38	1.0	*	mg/L	50	1/3/2018 10:03:41 PM	35764
Magnesium	38	1.0		mg/L	1	12/29/2017 7:43:32 PM	35764
Manganese	1.4	0.010	*	mg/L	5	1/4/2018 9:04:58 PM	35764
Potassium	6.2	1.0		mg/L	1	12/29/2017 7:43:32 PM	35764
Sodium	380	5.0		mg/L	5	1/2/2018 5:33:48 PM	35764
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Naphthalene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Acenaphthene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Fluorene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Phenanthrene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Anthracene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Fluoranthene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712747-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-30
Collection Date: 12/12/2017 1:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Pyrene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Benz(a)anthracene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Chrysene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/15/2017 11:02:11 PM	35504
Surr: N-hexadecane	74.7	18.7-145		%Rec	1	12/15/2017 11:02:11 PM	35504
Surr: Benzo(e)pyrene	78.8	28.2-137		%Rec	1	12/15/2017 11:02:11 PM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Toluene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Ethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Naphthalene	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
2-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Acetone	ND	10		µg/L	1	12/18/2017 9:00:00 PM	R47865
Bromobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Bromodichloromethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Bromoform	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Bromomethane	ND	3.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
2-Butanone	ND	10		µg/L	1	12/18/2017 9:00:00 PM	R47865
Carbon disulfide	ND	10		µg/L	1	12/18/2017 9:00:00 PM	R47865
Carbon Tetrachloride	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Chlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Chloroethane	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Chloroform	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Chloromethane	ND	3.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
2-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
4-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
cis-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712747-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-30
Collection Date: 12/12/2017 1:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Dibromochloromethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Dibromomethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1-Dichloroethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1-Dichloroethene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,3-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
2,2-Dichloropropane	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Hexachlorobutadiene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
2-Hexanone	ND	10		µg/L	1	12/18/2017 9:00:00 PM	R47865
Isopropylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
4-Isopropyltoluene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
4-Methyl-2-pentanone	ND	10		µg/L	1	12/18/2017 9:00:00 PM	R47865
Methylene Chloride	ND	3.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
n-Butylbenzene	ND	3.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
n-Propylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
sec-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Styrene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
tert-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
trans-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Trichlorofluoromethane	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Vinyl chloride	ND	1.0		µg/L	1	12/18/2017 9:00:00 PM	R47865
Xylenes, Total	ND	1.5		µg/L	1	12/18/2017 9:00:00 PM	R47865
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/18/2017 9:00:00 PM	R47865

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712747-001 **Matrix:** AQUEOUS

Client Sample ID: GBR-30
Collection Date: 12/12/2017 1:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	12/18/2017 9:00:00 PM	R47865
Surr: Dibromofluoromethane	105	70-130		%Rec	1	12/18/2017 9:00:00 PM	R47865
Surr: Toluene-d8	98.1	70-130		%Rec	1	12/18/2017 9:00:00 PM	R47865

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

Qualifiers:

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

QC SUMMARY REPORT

WO#: 1712747

ıll Environmental Analysis Laboratory, Inc.

10-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**MB-35764**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**PBW**	Batch ID:	**35764**	RunNo:	**48109**
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542641** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LLLCS-35764**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**BatchQC**	Batch ID:	**35764**	RunNo:	**48109**
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542645** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	103	50	150			
Iron	0.021	0.020	0.02000	0	107	50	150			
Magnesium	ND	1.0	0.5000	0	104	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
[illegible]assium	ND	1.0	0.5000	0	94.3	50	150			
[illegible]n	ND	1.0	0.5000	0	105	50	150			

Sample ID	**LCS-35764**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**LCSW**	Batch ID:	**35764**	RunNo:	**48109**
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542646** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Magnesium	51	1.0	50.00	0	103	85	115			
Manganese	0.50	0.0020	0.5000	0	99.0	85	115			
Potassium	50	1.0	50.00	0	101	85	115			
Sodium	51	1.0	50.00	0	103	85	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R47783**	RunNo: **47783**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527846** 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								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R47783**	RunNo: **47783**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	105	90	110			
Chloride	4.8	0.50	5.000	0	95.7	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	98.6	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A48068**	RunNo: **48068**
Prep Date:	Analysis Date: **12/27/2017**	SeqNo: **1540761** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A48068**	RunNo: **48068**
Prep Date:	Analysis Date: **12/27/2017**	SeqNo: **1540762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Qualifiers:

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

QC SUMMARY REPORT

WO#: 1712747

[redacted]all Environmental Analysis Laboratory, Inc.

10-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531684** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	111	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.9	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** 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								
[redacted]lbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1712747

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **1712747-001bms** SampType: **MS** TestCode: **EPA Method 8270C: PAHs**

Client ID: **GBR-30** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530508** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	16	0.50	20.00	0	78.0	19.5	130			
1-Methylnaphthalene	16	0.50	20.00	0	80.1	17.3	140			
2-Methylnaphthalene	16	0.50	20.00	0	79.6	19.2	135			
Acenaphthylene	15	0.50	20.00	0	75.3	26	126			
Acenaphthene	15	0.50	20.00	0	74.0	22.6	131			
Fluorene	16	0.50	20.00	0	79.0	26.4	133			
Phenanthrene	16	0.50	20.00	0	82.1	33.2	131			
Anthracene	16	0.50	20.00	0	78.7	35.5	128			
Fluoranthene	17	0.50	20.00	0	84.1	36.4	130			
Pyrene	16	0.50	20.00	0	82.4	33.6	126			
Benz(a)anthracene	16	0.50	20.00	0.1600	78.4	34.5	124			
Chrysene	13	0.50	20.00	0	65.6	36.6	121			
Benzo(b)fluoranthene	16	0.50	20.00	0	82.2	31.1	138			
Benzo(k)fluoranthene	15	0.50	20.00	0	76.0	28.6	136			
Benzo(a)pyrene	15	0.50	20.00	0	76.5	31.3	128			
Dibenz(a,h)anthracene	16	0.50	20.00	0	79.0	30.7	141			
Benzo(g,h,i)perylene	15	0.50	20.00	0.2000	75.9	26.2	136			
Indeno(1,2,3-cd)pyrene	15	0.50	20.00	0.2600	75.6	27.9	136			
Surr: N-hexadecane	70		87.60		80.3	18.7	145			
Surr: Benzo(e)pyrene	19		20.00		95.5	28.2	137			

Sample ID **1712747-001bmsd** SampType: **MSD** TestCode: **EPA Method 8270C: PAHs**

Client ID: **GBR-30** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530509** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	15	0.50	20.00	0	74.0	19.5	130	5.26	20	
1-Methylnaphthalene	15	0.50	20.00	0	73.4	17.3	140	8.73	20	
2-Methylnaphthalene	15	0.50	20.00	0	74.9	19.2	135	6.08	20	
Acenaphthylene	15	0.50	20.00	0	73.8	26	126	2.01	20	
Acenaphthene	15	0.50	20.00	0	73.4	22.6	131	0.814	20	
Fluorene	14	0.50	20.00	0	71.6	26.4	133	9.83	20	
Phenanthrene	15	0.50	20.00	0	77.0	33.2	131	6.41	20	
Anthracene	15	0.50	20.00	0	73.6	35.5	128	6.70	20	
Fluoranthene	15	0.50	20.00	0	73.6	36.4	130	13.3	20	
Pyrene	15	0.50	20.00	0	75.9	33.6	126	8.21	20	
Benz(a)anthracene	15	0.50	20.00	0.1600	75.8	34.5	124	3.34	20	
Chrysene	13	0.50	20.00	0	64.0	36.6	121	2.47	20	
Benzo(b)fluoranthene	16	0.50	20.00	0	78.3	31.1	138	4.86	20	

Qualifiers:

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

QC SUMMARY REPORT

WO#: 1712747

ll Environmental Analysis Laboratory, Inc.

10-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **1712747-001bmsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **GBR-30**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530509** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	15	0.50	20.00	0	72.7	28.6	136	4.44	20	
Benzo(a)pyrene	15	0.50	20.00	0	75.3	31.3	128	1.58	20	
Dibenz(a,h)anthracene	16	0.50	20.00	0	77.5	30.7	141	1.92	20	
Benzo(g,h,i)perylene	16	0.50	20.00	0.2000	76.5	26.2	136	0.777	20	
Indeno(1,2,3-cd)pyrene	15	0.50	20.00	0.2600	73.9	27.9	136	2.24	20	
Surr: N-hexadecane	67		87.60		76.3	18.7	145	0	0	
Surr: Benzo(e)pyrene	17		20.00		83.3	28.2	137	0	0	

Sample ID **lcs-35504**	SampType: **LCS**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **LCSW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	14	0.50	20.00	0	68.8	28.6	113			
1-Methylnaphthalene	14	0.50	20.00	0	67.9	27	113			
2-Methylnaphthalene	13	0.50	20.00	0	66.3	26.3	112			
Acenaphthylene	13	0.50	20.00	0	65.6	36.2	114			
[redacted]aphthene	13	0.50	20.00	0	65.8	35.6	116			
Fluorene	14	0.50	20.00	0	67.7	38.4	116			
Phenanthrene	14	0.50	20.00	0	72.1	42.3	118			
Anthracene	14	0.50	20.00	0	69.7	42.2	117			
Fluoranthene	15	0.50	20.00	0	73.7	42.5	118			
Pyrene	14	0.50	20.00	0	67.5	40.8	121			
Benz(a)anthracene	14	0.50	20.00	0	71.5	43	118			
Chrysene	12	0.50	20.00	0	57.5	39.4	119			
Benzo(b)fluoranthene	15	0.50	20.00	0	73.1	47.8	115			
Benzo(k)fluoranthene	13	0.50	20.00	0	66.7	40.5	120			
Benzo(a)pyrene	14	0.50	20.00	0	68.6	41.5	115			
Dibenz(a,h)anthracene	14	0.50	20.00	0	70.4	48.6	115			
Benzo(g,h,i)perylene	14	0.50	20.00	0	68.6	42	119			
Indeno(1,2,3-cd)pyrene	14	0.50	20.00	0	68.2	42.9	118			
Surr: N-hexadecane	60		87.60		68.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		70.1	28.2	137			

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**	
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**	
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513**	Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Acenaphthylene	ND	0.50								
Acenaphthene	ND	0.50								
Fluorene	ND	0.50								
Phenanthrene	ND	0.50								
Anthracene	ND	0.50								
Fluoranthene	ND	0.50								
Pyrene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Chrysene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								
Benzo(k)fluoranthene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Surr: N-hexadecane	61		87.60		69.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		71.7	28.2	137			

Qualifiers:

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

QC SUMMARY REPORT

WO#: **1712747**

Hall Environmental Analysis Laboratory, Inc.

10-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**					
Client ID:	**LCSW**	Batch ID: **R47803**		RunNo: **47803**					
Prep Date:		Analysis Date: **12/13/2017**		SeqNo: **1528860**		Units: **µmhos/cm**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	22	5.0	19.96	0	110	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-1 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R47803**	RunNo: **47803**							
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1528814**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R47803**	RunNo: **47803**							
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1528815**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.32	20.00	80.00	0	97.9	90	110			

Sample ID **mb-2 alk**	SampType: **MBLK**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R47803**	RunNo: **47803**							
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1528838**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-2 alk**	SampType: **LCS**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R47803**	RunNo: **47803**							
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1528839**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.56	20.00	80.00	0	98.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

ıll Environmental Analysis Laboratory, Inc.

WO#: **1712747**

10-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**MB-35599**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**PBW**	Batch ID:	**35599**		RunNo:	**47947**				
Prep Date:	**12/19/2017**	Analysis Date:	**12/21/2017**		SeqNo:	**1536146**	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-35599**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**				
Client ID:	**LCSW**	Batch ID:	**35599**		RunNo:	**47947**				
Prep Date:	**12/19/2017**	Analysis Date:	**12/21/2017**		SeqNo:	**1536147**	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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: **Western Refining Southw** Work Order Number: **1712747** RcptNo: **1**

Received By: **Anne Thorne** 12/13/2017 7:00:00 AM Anne Thorne

Completed By: **Michelle Garcia** 12/13/2017 10:14:01 AM Michelle Garcia

Reviewed By: ENM 12/13/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client:	Western Refining Kelly Robinson
Mailing Address:	111 CR 4990 Farmington, NM 87413
Phone #:	505-632-4166
email or Fax#:	kelly.robinson@wnr.com
QA/QC Package:	☐ Standard ☐ Level 4 (Full Validation)
Accreditation	☐ NELAP ☐ Other _____
☐ EDD (Type)	_____

Turn-Around Time:	☒ Standard ☐ Rush _____
Project Name:	GBR Annual Sampling
Project #:	WR1009
Project Manager:	Devin Hencmann
Sampler:	
On Ice:	☒ Yes ☐ No
Sample Temperature:	1.0

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712747	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	see attached				Air Bubbles (Y or N)
12-1-17	1330	GW	GBR-30	various	various	001												X				

Date	Time	Relinquished by:	Received by:	Date	Time
12-12-17	1530			12/12/17	1530
12/12/17	1921			12/13/17	0700

Remarks: cc: dhencmann@henv.com
cager@henv.com

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

TABLE 1

2015 SAMPLING SCHEDULE
FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING

Sample ID	ANNUALLY (Jan)
System Influent	VOC GWC
System Effluent	VOC GWC METALS PAH
GRW-3	VOC GWC PAH
GRW-6	VOC GWC PAH
GBR-17	VOC GWC PAH
GBR-24D	VOC GWC PAH
GBR-30	VOC GWC PAH
GBR-31	VOC GWC PAH
GBR-32	VOC GWC METALS
GBR-48	VOC GWC METALS
GBR-49	VOC GWC METALS
GBR-50	VOC GWC METALS
GBR-51	VOC GWC
GBR-52	VOC GWC
SHS-8	VOC GWC

Notes

VOC
method 8260

PAH
method 8270

GWC
pH
EC
TDS
alkalinity
hardness
anions
bromide
chloride
sulfate
fluoride
nitrate/nitrite
phosperus
cations
calcium
iron
magnesium
manganese
potassium
sodium

Metals
barium
beryllium
cadmium
chromium
copper
lead
nickel
silver
zinc
antimony
arsenic
selenium
thallium
mercury

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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Website: www.hallenvironmental.com

January 12, 2018

Devin Hencmann
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL:
FAX

RE: GBR Annual Sampling OrderNo.: 1712748

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 2 sample(s) on 12/13/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-001 **Matrix:** AQUEOUS

Client Sample ID: GRW-6
Collection Date: 12/12/2017 12:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1100	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	1.5	0.10		mg/L	1	12/13/2017 3:32:08 PM	R47783
Chloride	120	10		mg/L	20	12/13/2017 3:44:33 PM	R47783
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/13/2017 3:32:08 PM	R47783
Bromide	0.77	0.10		mg/L	1	12/13/2017 3:32:08 PM	R47783
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	12/13/2017 3:32:08 PM	R47783
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/13/2017 3:44:33 PM	R47783
Sulfate	1200	25	*	mg/L	50	12/28/2017 12:09:30 AM	A48068
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3000	5.0		µmhos/cm	1	12/13/2017 10:24:54 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	388.3	20.00		mg/L CaCO3	1	12/13/2017 10:24:54 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 10:24:54 PM	R47803
Total Alkalinity (as CaCO3)	388.3	20.00		mg/L CaCO3	1	12/13/2017 10:24:54 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	2570	40.0	*D	mg/L	1	12/21/2017 10:34:00 AM	35599
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.65		H	pH units	1	12/13/2017 10:24:54 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	340	5.0		mg/L	5	1/2/2018 5:35:37 PM	35764
Iron	40	1.0	*	mg/L	50	1/3/2018 10:19:47 PM	35764
Magnesium	54	5.0		mg/L	5	1/2/2018 5:35:37 PM	35764
Manganese	9.1	0.020	*	mg/L	10	1/5/2018 3:54:36 PM	35764
Potassium	2.1	1.0		mg/L	1	12/29/2017 7:45:31 PM	35764
Sodium	390	5.0		mg/L	5	1/2/2018 5:35:37 PM	35764
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Naphthalene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Acenaphthene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Fluorene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Phenanthrene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Anthracene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-001 **Matrix:** AQUEOUS

Client Sample ID: GRW-6
Collection Date: 12/12/2017 12:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Pyrene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Benz(a)anthracene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Chrysene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/16/2017 12:14:43 AM	35504
Surr: N-hexadecane	59.1	18.7-145		%Rec	1	12/16/2017 12:14:43 AM	35504
Surr: Benzo(e)pyrene	61.2	28.2-137		%Rec	1	12/16/2017 12:14:43 AM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Toluene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Ethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Naphthalene	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
2-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Acetone	ND	10		µg/L	1	12/18/2017 9:24:00 PM	R47865
Bromobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Bromodichloromethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Bromoform	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Bromomethane	ND	3.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
2-Butanone	ND	10		µg/L	1	12/18/2017 9:24:00 PM	R47865
Carbon disulfide	ND	10		µg/L	1	12/18/2017 9:24:00 PM	R47865
Carbon Tetrachloride	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Chlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Chloroethane	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Chloroform	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Chloromethane	ND	3.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
2-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
4-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
cis-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-001 **Matrix:** AQUEOUS

Client Sample ID: GRW-6
Collection Date: 12/12/2017 12:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Dibromochloromethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Dibromomethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1-Dichloroethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1-Dichloroethene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,3-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
2,2-Dichloropropane	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Hexachlorobutadiene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
2-Hexanone	ND	10		µg/L	1	12/18/2017 9:24:00 PM	R47865
Isopropylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
4-Isopropyltoluene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
4-Methyl-2-pentanone	ND	10		µg/L	1	12/18/2017 9:24:00 PM	R47865
Methylene Chloride	ND	3.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
n-Butylbenzene	ND	3.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
n-Propylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
sec-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Styrene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
tert-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
trans-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Trichlorofluoromethane	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Vinyl chloride	ND	1.0		µg/L	1	12/18/2017 9:24:00 PM	R47865
Xylenes, Total	ND	1.5		µg/L	1	12/18/2017 9:24:00 PM	R47865
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	12/18/2017 9:24:00 PM	R47865

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-001 **Matrix:** AQUEOUS

Client Sample ID: GRW-6
Collection Date: 12/12/2017 12:30:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: 4-Bromofluorobenzene	94.7	70-130		%Rec	1	12/18/2017 9:24:00 PM	R47865
Surr: Dibromofluoromethane	102	70-130		%Rec	1	12/18/2017 9:24:00 PM	R47865
Surr: Toluene-d8	98.0	70-130		%Rec	1	12/18/2017 9:24:00 PM	R47865

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Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** GBR-24D
Project: GBR Annual Sampling **Collection Date:** 12/12/2017 2:15:00 PM
Lab ID: 1712748-002 **Matrix:** AQUEOUS **Received Date:** 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1200	6.6		mg/L	1	1/2/2018	R48123
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Fluoride	1.5	0.10		mg/L	1	12/13/2017 4:21:47 PM	R47783
Chloride	140	10		mg/L	20	12/13/2017 4:34:11 PM	R47783
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	12/13/2017 4:21:47 PM	R47783
Bromide	0.79	0.10		mg/L	1	12/13/2017 4:21:47 PM	R47783
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	12/13/2017 4:21:47 PM	R47783
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	12/13/2017 4:34:11 PM	R47783
Sulfate	1800	50	*	mg/L	100	12/28/2017 12:21:55 AM	A48068
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4000	5.0		µmhos/cm	1	12/13/2017 10:42:14 PM	R47803
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	243.2	20.00		mg/L CaCO3	1	12/13/2017 10:42:14 PM	R47803
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	12/13/2017 10:42:14 PM	R47803
Total Alkalinity (as CaCO3)	243.2	20.00		mg/L CaCO3	1	12/13/2017 10:42:14 PM	R47803
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **SRM**	
Total Dissolved Solids	3560	40.0	*D	mg/L	1	12/21/2017 10:34:00 AM	35599
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.90		H	pH units	1	12/13/2017 10:42:14 PM	R47803
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	440	5.0		mg/L	5	1/2/2018 5:40:58 PM	35764
Iron	11	0.40	*	mg/L	20	1/3/2018 10:23:19 PM	35764
Magnesium	39	1.0		mg/L	1	12/29/2017 7:51:15 PM	35764
Manganese	1.8	0.010	*	mg/L	5	1/4/2018 9:18:10 PM	35764
Potassium	7.9	1.0		mg/L	1	12/29/2017 7:51:15 PM	35764
Sodium	420	10		mg/L	10	1/9/2018 5:28:06 PM	35764
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Naphthalene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
1-Methylnaphthalene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
2-Methylnaphthalene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Acenaphthylene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Acenaphthene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Fluorene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Phenanthrene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Anthracene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504

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

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-002 **Matrix:** AQUEOUS

Client Sample ID: GBR-24D
Collection Date: 12/12/2017 2:15:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: PAHS						Analyst: **DAM**	
Pyrene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Benz(a)anthracene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Chrysene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Benzo(b)fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Benzo(k)fluoranthene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Benzo(a)pyrene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Dibenz(a,h)anthracene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Benzo(g,h,i)perylene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Indeno(1,2,3-cd)pyrene	ND	0.50		µg/L	1	12/16/2017 12:38:56 AM	35504
Surr: N-hexadecane	49.1	18.7-145		%Rec	1	12/16/2017 12:38:56 AM	35504
Surr: Benzo(e)pyrene	44.5	28.2-137		%Rec	1	12/16/2017 12:38:56 AM	35504
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Toluene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Ethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2-Dichloroethane (EDC)	1.5	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Naphthalene	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
2-Methylnaphthalene	ND	4.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Acetone	ND	10		µg/L	1	12/18/2017 9:47:00 PM	R47865
Bromobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Bromodichloromethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Bromoform	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Bromomethane	ND	3.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
2-Butanone	ND	10		µg/L	1	12/18/2017 9:47:00 PM	R47865
Carbon disulfide	ND	10		µg/L	1	12/18/2017 9:47:00 PM	R47865
Carbon Tetrachloride	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Chlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Chloroethane	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Chloroform	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Chloromethane	ND	3.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
2-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
4-Chlorotoluene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
cis-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865

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Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-002 **Matrix:** AQUEOUS

Client Sample ID: GBR-24D
Collection Date: 12/12/2017 2:15:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Dibromochloromethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Dibromomethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,3-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,4-Dichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Dichlorodifluoromethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1-Dichloroethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1-Dichloroethene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,3-Dichloropropane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
2,2-Dichloropropane	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Hexachlorobutadiene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
2-Hexanone	ND	10		µg/L	1	12/18/2017 9:47:00 PM	R47865
Isopropylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
4-Isopropyltoluene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
4-Methyl-2-pentanone	ND	10		µg/L	1	12/18/2017 9:47:00 PM	R47865
Methylene Chloride	ND	3.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
n-Butylbenzene	ND	3.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
n-Propylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
sec-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Styrene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
tert-Butylbenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
trans-1,2-DCE	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1,1-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,1,2-Trichloroethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Trichloroethene (TCE)	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Trichlorofluoromethane	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
1,2,3-Trichloropropane	ND	2.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Vinyl chloride	ND	1.0		µg/L	1	12/18/2017 9:47:00 PM	R47865
Xylenes, Total	ND	1.5		µg/L	1	12/18/2017 9:47:00 PM	R47865
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	12/18/2017 9:47:00 PM	R47865

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

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: GBR Annual Sampling
Lab ID: 1712748-002 **Matrix:** AQUEOUS

Client Sample ID: GBR-24D
Collection Date: 12/12/2017 2:15:00 PM
Received Date: 12/13/2017 7:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**	
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	12/18/2017 9:47:00 PM	R47865
Surr: Dibromofluoromethane	103	70-130		%Rec	1	12/18/2017 9:47:00 PM	R47865
Surr: Toluene-d8	99.2	70-130		%Rec	1	12/18/2017 9:47:00 PM	R47865

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**MB-35764**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**PBW**	Batch ID:	**35764**	RunNo:	**48109**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542641**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LLLCS-35764**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**BatchQC**	Batch ID:	**35764**	RunNo:	**48109**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542645**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	103	50	150			
Iron	0.021	0.020	0.02000	0	107	50	150			
Magnesium	ND	1.0	0.5000	0	104	50	150			
Manganese	0.0021	0.0020	0.002000	0	104	50	150			
Potassium	ND	1.0	0.5000	0	94.3	50	150			
Sodium	ND	1.0	0.5000	0	105	50	150			

Sample ID	**LCS-35764**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**LCSW**	Batch ID:	**35764**	RunNo:	**48109**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1542646**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	100	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Magnesium	51	1.0	50.00	0	103	85	115			
Manganese	0.50	0.0020	0.5000	0	99.0	85	115			
Potassium	50	1.0	50.00	0	101	85	115			
Sodium	51	1.0	50.00	0	103	85	115			

Sample ID	**1712748-001DMS**	SampType:	**MS**	TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**GRW-6**	Batch ID:	**35764**	RunNo:	**48109**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**	SeqNo:	**1543688**	Units:	**mg/L**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	53	1.0	50.00	2.091	102	70	130			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**1712748-001DMSD**	SampType:	**MSD**		TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**GRW-6**	Batch ID:	**35764**		RunNo:	**48109**				
Prep Date:	**12/28/2017**	Analysis Date:	**12/29/2017**		SeqNo:	**1543689**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	54	1.0	50.00	2.091	104	70	130	1.46	20	

Sample ID	**1712748-001DMS**	SampType:	**MS**		TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**GRW-6**	Batch ID:	**35764**		RunNo:	**48123**				
Prep Date:	**12/28/2017**	Analysis Date:	**1/2/2018**		SeqNo:	**1544790**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	390	5.0	50.00	338.1	101	70	130			
Magnesium	110	5.0	50.00	53.91	103	70	130			
Sodium	430	5.0	50.00	389.2	87.9	70	130			

Sample ID	**1712748-001DMSD**	SampType:	**MSD**		TestCode:	**EPA Method 200.7: Metals**				
Client ID:	**GRW-6**	Batch ID:	**35764**		RunNo:	**48123**				
Prep Date:	**12/28/2017**	Analysis Date:	**1/2/2018**		SeqNo:	**1544791**	Units:	**mg/L**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	390	5.0	50.00	338.1	102	70	130	0.235	20	
esium	110	5.0	50.00	53.91	104	70	130	0.503	20	
.m	440	5.0	50.00	389.2	91.7	70	130	0.429	20	

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R47783**	RunNo: **47783**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527846** 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								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R47783**	RunNo: **47783**
Prep Date:	Analysis Date: **12/13/2017**	SeqNo: **1527847** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	105	90	110			
Chloride	4.8	0.50	5.000	0	95.7	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	98.6	90	110			
Bromide	2.5	0.10	2.500	0	98.5	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	102	90	110			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.3	90	110			

Sample ID **MB**	SampType: **mblk**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A48068**	RunNo: **48068**
Prep Date:	Analysis Date: **12/27/2017**	SeqNo: **1540761** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **lcs**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **A48068**	RunNo: **48068**
Prep Date:	Analysis Date: **12/27/2017**	SeqNo: **1540762** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.8	0.50	10.00	0	98.4	90	110			

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531684** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	21	1.0	20.00	0	107	70	130			
Chlorobenzene	22	1.0	20.00	0	109	70	130			
1,1-Dichloroethene	22	1.0	20.00	0	111	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.4	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.9	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** 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								
[redacted]lbenzene	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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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

Qualifiers:

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QC SUMMARY REPORT

WO#: **1712748**

ıll Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBW**	Batch ID: **R47865**	RunNo: **47865**
Prep Date:	Analysis Date: **12/18/2017**	SeqNo: **1531986** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.5	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **lcs-35504** SampType: **LCS** TestCode: **EPA Method 8270C: PAHs**

Client ID: **LCSW** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530512** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	14	0.50	20.00	0	68.8	28.6	113			
1-Methylnaphthalene	14	0.50	20.00	0	67.9	27	113			
2-Methylnaphthalene	13	0.50	20.00	0	66.3	26.3	112			
Acenaphthylene	13	0.50	20.00	0	65.6	36.2	114			
Acenaphthene	13	0.50	20.00	0	65.8	35.6	116			
Fluorene	14	0.50	20.00	0	67.7	38.4	116			
Phenanthrene	14	0.50	20.00	0	72.1	42.3	118			
Anthracene	14	0.50	20.00	0	69.7	42.2	117			
Fluoranthene	15	0.50	20.00	0	73.7	42.5	118			
Pyrene	14	0.50	20.00	0	67.5	40.8	121			
Benz(a)anthracene	14	0.50	20.00	0	71.5	43	118			
Chrysene	12	0.50	20.00	0	57.5	39.4	119			
Benzo(b)fluoranthene	15	0.50	20.00	0	73.1	47.8	115			
Benzo(k)fluoranthene	13	0.50	20.00	0	66.7	40.5	120			
Benzo(a)pyrene	14	0.50	20.00	0	68.6	41.5	115			
Dibenz(a,h)anthracene	14	0.50	20.00	0	70.4	48.6	115			
Benzo(g,h,i)perylene	14	0.50	20.00	0	68.6	42	119			
Indeno(1,2,3-cd)pyrene	14	0.50	20.00	0	68.2	42.9	118			
Surr: N-hexadecane	60		87.60		68.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		70.1	28.2	137			

Sample ID **mb-35504** SampType: **MBLK** TestCode: **EPA Method 8270C: PAHs**

Client ID: **PBW** Batch ID: **35504** RunNo: **47841**

Prep Date: **12/14/2017** Analysis Date: **12/15/2017** SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.50								
1-Methylnaphthalene	ND	0.50								
2-Methylnaphthalene	ND	0.50								
Acenaphthylene	ND	0.50								
Acenaphthene	ND	0.50								
Fluorene	ND	0.50								
Phenanthrene	ND	0.50								
Anthracene	ND	0.50								
Fluoranthene	ND	0.50								
Pyrene	ND	0.50								
Benz(a)anthracene	ND	0.50								
Chrysene	ND	0.50								
Benzo(b)fluoranthene	ND	0.50								

Qualifiers:

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **mb-35504**	SampType: **MBLK**	TestCode: **EPA Method 8270C: PAHs**
Client ID: **PBW**	Batch ID: **35504**	RunNo: **47841**
Prep Date: **12/14/2017**	Analysis Date: **12/15/2017**	SeqNo: **1530513** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(k)fluoranthene	ND	0.50								
Benzo(a)pyrene	ND	0.50								
Dibenz(a,h)anthracene	ND	0.50								
Benzo(g,h,i)perylene	ND	0.50								
Indeno(1,2,3-cd)pyrene	ND	0.50								
Surr: N-hexadecane	61		87.60		69.9	18.7	145			
Surr: Benzo(e)pyrene	14		20.00		71.7	28.2	137			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID	**lcs-1 ~20uS eC**	SampType: **LCS**		TestCode: **SM2510B: Specific Conductance**						
Client ID:	**LCSW**	Batch ID: **R47803**		RunNo: **47803**						
Prep Date:		Analysis Date: **12/13/2017**		SeqNo: **1528860**		Units: **µmhos/cm**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity		22	5.0	19.96	0	110	80	120			

Qualifiers:

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D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: 1712748

ll Environmental Analysis Laboratory, Inc.

12-Jan-18

Client: Western Refining Southwest, Inc.
Project: GBR Annual Sampling

Sample ID	mb-1 alk	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R47803	RunNo:	47803					
Prep Date:		Analysis Date:	12/13/2017	SeqNo:	1528814	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-1 alk	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R47803	RunNo:	47803					
Prep Date:		Analysis Date:	12/13/2017	SeqNo:	1528815	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.32	20.00	80.00	0	97.9	90	110			

Sample ID	mb-2 alk	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R47803	RunNo:	47803					
Prep Date:		Analysis Date:	12/13/2017	SeqNo:	1528838	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID	lcs-2 alk	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
nt ID:	LCSW	Batch ID:	R47803	RunNo:	47803					
ep Date:		Analysis Date:	12/13/2017	SeqNo:	1528839	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.56	20.00	80.00	0	98.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1712748**

12-Jan-18

Client: Western Refining Southwest, Inc.

Project: GBR Annual Sampling

Sample ID **MB-35599**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **35599**	RunNo: **47947**
Prep Date: **12/19/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536146** 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-35599**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **35599**	RunNo: **47947**
Prep Date: **12/19/2017**	Analysis Date: **12/21/2017**	SeqNo: **1536147** 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.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1712748 RcptNo: 1

Received By: Anne Thorne 12/13/2017 7:00:00 AM Anne Thorne
Completed By: Michelle Garcia 12/13/2017 10:24:35 AM Michelle Garcia
Reviewed By: ENM 12/13/17

Chain of Custody

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

Log In

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

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified: ____ Date: ____
By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: ____
Client Instructions: ____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield Farmington NM 87413
Phone #: 505 632 4166
email or Fax#: Kelly.Robinson@andeavor.com
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: GBR Annual Sampling
Project #: WR1009
Project Manager: Devin Hencmann
Sampler:
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

HALL ANAL
www.hallenviro
4901 Hawkins NE - Albu
Tel. 505-345-3975 Fa

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1712748
12-1-17	1230	GW	GRW-6	various	various	-001
	1415	GW	GBR-24D	↓	↓	-002

Analys

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8

Date:	Time:	Relinquished by:	Received by:	Date	Time
12-2-17	1530			12/2/17	1536
12/2/17	1921			12/3/17	0700

Remarks: cc: dhencm aager@

If nec[illegible] samples submitted to Hall Environmental may be subcontracted to other accredited laboratories[illegible] serves as notice of this possibility. Any sub-contracted data will be c

TABLE 1

2015 SAMPLING SCHEDULE
FORMER GIANT BLOOMFIELD REFINERY
WESTERN REFINING

Sample ID	ANNUALLY (Jan)
System Influent	VOC GWC
System Effluent	VOC GWC METALS PAH
GRW-3	VOC GWC PAH
GRW-6	VOC GWC PAH
GBR-17	VOC GWC PAH
GBR-24D	VOC GWC PAH
GBR-30	VOC GWC PAH
GBR-31	VOC GWC PAH
GBR-32	VOC GWC METALS
GBR-48	VOC GWC METALS
GBR-49	VOC GWC METALS
GBR-50	VOC GWC METALS
GBR-51	VOC GWC
GBR-52	VOC GWC
SHS-8	VOC GWC

Notes:

VOC
method 8260

PAH
method 8270

GWC
pH
EC
TDS
alkalinity
hardness
anions
bromide
chloride
sulfate
fluoride
nitrate/nitrite
phosporus
cations
calcium
iron
magnesium
manganese
potassium
sodium

Metals
barium
beryllium
cadmium
chromium
copper
lead
nickel
silver
zinc
antimony
arsenic
selenium
thallium
mercury

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 12, 2017

Kelly Robinson

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

RE: SHS-1-5 Monitoring

OrderNo.: 1706093

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/2/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706093**
Date Reported: **6/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: SHS-1-5 Monitoring
Lab ID: 1706093-001 **Matrix:** AQUEOUS

Client Sample ID: SHS-1
Collection Date: 6/1/2017 12:50:00 PM
Received Date: 6/2/2017 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	1.5	0.20		mg/L	1	6/6/2017 9:28:00 AM	32101
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/6/2017 9:28:00 AM	32101
Surr: DNOP	96.6	86-162		%Rec	1	6/6/2017 9:28:00 AM	32101
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	2200	6.6		mg/L	1	6/6/2017	R43296
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	100	10		mg/L	20	6/2/2017 9:14:18 PM	R43225
Sulfate	1300	25	*	mg/L	50	6/7/2017 12:10:29 AM	A43289
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	3500	1.0		µmhos/cm	1	6/5/2017 5:58:39 PM	R43291
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	752.4	20.00		mg/L CaCO3	1	6/5/2017 5:58:39 PM	R43291
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/5/2017 5:58:39 PM	R43291
Total Alkalinity (as CaCO3)	752.4	20.00		mg/L CaCO3	1	6/5/2017 5:58:39 PM	R43291
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2400	200	*D	mg/L	1	6/8/2017 9:27:00 PM	32171
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.55		H	pH units	1	6/5/2017 5:58:39 PM	R43291
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	610	20		mg/L	20	6/6/2017 5:21:57 PM	32118
Magnesium	150	20		mg/L	20	6/6/2017 5:21:57 PM	32118
Potassium	39	20		mg/L	20	6/6/2017 5:21:57 PM	32118
Sodium	490	20		mg/L	20	6/6/2017 5:21:57 PM	32118
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.10	D	mg/L	2	6/6/2017 10:21:56 AM	R43288
Surr: BFB	110	52.3-138	D	%Rec	2	6/6/2017 10:21:56 AM	R43288

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: SHS-1-5 Monitoring
Lab ID: 1706093-002 **Matrix:** AQUEOUS

Client Sample ID: SHS-2
Collection Date: 6/1/2017 2:30:00 PM
Received Date: 6/2/2017 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	24	0.20		mg/L	1	6/6/2017 10:53:18 AM	32101
Motor Oil Range Organics (MRO)	2.8	2.5		mg/L	1	6/6/2017 10:53:18 AM	32101
Surr: DNOP	102	86-162		%Rec	1	6/6/2017 10:53:18 AM	32101
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	2100	6.6		mg/L	1	6/6/2017	R43296
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	310	10	*	mg/L	20	6/2/2017 9:39:08 PM	R43225
Sulfate	2200	50	*	mg/L	100	6/7/2017 12:22:53 AM	A43289
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	4600	1.0		µmhos/cm	1	6/5/2017 6:26:16 PM	R43291
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	298.4	20.00		mg/L CaCO3	1	6/5/2017 6:26:16 PM	R43291
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/5/2017 6:26:16 PM	R43291
Total Alkalinity (as CaCO3)	298.4	20.00		mg/L CaCO3	1	6/5/2017 6:26:16 PM	R43291
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	4100	200	*D	mg/L	1	6/8/2017 9:27:00 PM	32171
SM4500-H+B: PH						Analyst: **JRR**	
pH	6.90		H	pH units	1	6/5/2017 6:26:16 PM	R43291
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	560	10		mg/L	10	6/6/2017 3:17:33 PM	32118
Magnesium	160	10		mg/L	10	6/6/2017 3:17:33 PM	32118
Potassium	23	10		mg/L	10	6/6/2017 3:17:33 PM	32118
Sodium	500	10		mg/L	10	6/6/2017 3:17:33 PM	32118
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	0.11	0.10	D	mg/L	2	6/6/2017 10:45:36 AM	R43288
Surr: BFB	125	52.3-138	D	%Rec	2	6/6/2017 10:45:36 AM	R43288

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: SHS-1-5 Monitoring
Lab ID: 1706093-003 **Matrix:** AQUEOUS

Client Sample ID: SHS-4
Collection Date: 6/1/2017 3:30:00 PM
Received Date: 6/2/2017 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/6/2017 11:21:53 AM	32101
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/6/2017 11:21:53 AM	32101
Surr: DNOP	103	86-162		%Rec	1	6/6/2017 11:21:53 AM	32101
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1600	6.6		mg/L	1	6/6/2017	R43296
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	59	2.5		mg/L	5	6/2/2017 9:51:32 PM	R43225
Sulfate	1600	25	*	mg/L	50	6/7/2017 12:35:18 AM	A43289
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	2900	1.0		µmhos/cm	1	6/5/2017 6:42:06 PM	R43291
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	202.8	20.00		mg/L CaCO3	1	6/5/2017 6:42:06 PM	R43291
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/5/2017 6:42:06 PM	R43291
Total Alkalinity (as CaCO3)	202.8	20.00		mg/L CaCO3	1	6/5/2017 6:42:06 PM	R43291
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2270	200	*D	mg/L	1	6/8/2017 9:27:00 PM	32171
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.63		H	pH units	1	6/5/2017 6:42:06 PM	R43291
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	520	10		mg/L	10	6/6/2017 3:21:02 PM	32118
Magnesium	68	10		mg/L	10	6/6/2017 3:21:02 PM	32118
Potassium	23	10		mg/L	10	6/6/2017 3:21:02 PM	32118
Sodium	280	10		mg/L	10	6/6/2017 3:21:02 PM	32118
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.10	D	mg/L	2	6/5/2017 6:30:40 PM	G43256
Surr: BFB	108	52.3-138	D	%Rec	2	6/5/2017 6:30:40 PM	G43256

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706093**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS-1-5 Monitoring

Sample ID	**MB-32118**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**PBW**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:	**6/5/2017**	Analysis Date:	**6/6/2017**	SeqNo:	**1362918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LCSLL-32118**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**BatchQC**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:		Analysis Date:	**6/6/2017**	SeqNo:	**1362919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	102	50	150			
Magnesium	ND	1.0	0.5000	0	104	50	150			
Potassium	ND	1.0	0.5000	0	84.2	50	150			
Sodium	ND	1.0	0.5000	0	103	50	150			

Sample ID	**LCS-32118**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**LCSW**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:	**6/5/2017**	Analysis Date:	**6/6/2017**	SeqNo:	**1362920** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.7	85	115			
Magnesium	50	1.0	50.00	0	100	85	115			
Potassium	48	1.0	50.00	0	96.4	85	115			
Sodium	49	1.0	50.00	0	97.9	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706093**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS-1-5 Monitoring

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43225**	RunNo: **43225**
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361239** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43225**	RunNo: **43225**
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361240** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **A43289**	RunNo: **43289**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363422** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
nt ID: **LCSW**	Batch ID: **A43289**	RunNo: **43289**
.ep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363423** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.7	0.50	10.00	0	96.7	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706093**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS-1-5 Monitoring

Sample ID **MB-32101**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.50		0.5000		99.9	86	162			

Sample ID **1706093-001BMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **SHS-1**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362417** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	4.1	0.20	2.500	1.542	104	75.4	162			
Surr: DNOP	0.26		0.2500		105	86	162			

Sample ID **1706093-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **SHS-1**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362512** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.5	0.20	2.500	1.542	158	75.4	162	28.0	20	R
Surr: DNOP	0.27		0.2500		109	86	162	0	0	

Sample ID **LCS-32101**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362743** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	72	170			
Surr: DNOP	0.24		0.2500		96.6	86	162			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1706093**

›ll Environmental Analysis Laboratory, Inc.

12-Jun-17

Client: Western Refining Southwest, Inc.
Project: SHS-1-5 Monitoring

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **G43256**	RunNo: **43256**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1361982** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	22		20.00		112	52.3	138			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **G43256**	RunNo: **43256**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1361984** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.0	79.1	123			
Surr: BFB	24		20.00		122	52.3	138			

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R43288**	RunNo: **43288**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
r: BFB	22		20.00		109	52.3	138			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R43288**	RunNo: **43288**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363151** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.55	0.050	0.5000	0	110	79.1	123			
Surr: BFB	25		20.00		123	52.3	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706093**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS-1-5 Monitoring

Sample ID **mb-1**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**							
Client ID: **PBW**	Batch ID: **R43291**	RunNo: **43291**							
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362686**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**							
Client ID: **LCSW**	Batch ID: **R43291**	RunNo: **43291**							
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362687**	Units: **mg/L CaCO3**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.68	20.00	80.00	0	98.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706093**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS-1-5 Monitoring

Sample ID **MB-32171**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **32171**	RunNo: **43363**
Prep Date: **6/7/2017**	Analysis Date: **6/8/2017**	SeqNo: **1365253** 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-32171**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **32171**	RunNo: **43363**
Prep Date: **6/7/2017**	Analysis Date: **6/8/2017**	SeqNo: **1365254** 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			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1706093 RcptNo: 1

Received By: Erin Melendrez 6/2/2017 8:25:00 AM

Completed By: Ashley Gallegos 6/2/2017 9:17:52 AM

Reviewed By: SRC 06/02/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	~~Yes ☑~~	No ☑ ENM 06/02/17	
9. Was preservative added to bottles?	Yes ☑	~~No ☑~~ 06/02/17	NA ☐
10. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? YES
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: ENM

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding _____

Client Instructions: _____

17. Additional remarks: poured off 12.5mL from provided plastic bottle for metals analysis. Added 0.4mL HNO_3 for proper pH for metals analysis. Held for 24 hrs prior to analysis. -ENM 06/02/17 1245

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Not Present			

Chain-of-Custody Record

Client: Kelly Robinson
Western Refining
Mailing Address: 111 4990
Bloomfield, NM 87413
Phone #:
email or Fax#:
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☑ Standard ☐ Rush
Project Name: SHS-1-5 Monitoring
Project #: 12619009
Project Manager: Kelly Robinson
Sampler: Michael A Wicker
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.9

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1704166093	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO3,NO2,PO4,SO4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	General Chemistry	TPH - GRO	TPH - DRO Ext		Air Bubbles (Y or N)
6-1-17	1250	AQ	SHS-1	5	HCl/Cool	-001												X	X	X		
↓	1430	↓	SHS-2	↓	↓	-002												↓	↓	↓		
↓	1530	↓	SHS-4	↓	↓	-003												↓	↓	↓		

Date:	Time:	Relinquished by:	Received by:	Date	Time
6-1-17	1635			6/1/17	1638
6/1/17	1857			06/02/17	0825

Remarks: Please CC: DHeinmann@LTEnv.com
*General Chemistry: Cl, SO4, Cations ASAP 06/02/17
Hard, Alk, Specific Cond. pH TDS per Devon

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 12, 2017

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

RE: SHS 1-5 Monitoring OrderNo.: 1706095

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 6/2/2017 for the analyses presented in the following report.

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

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1706095**
Date Reported: **6/12/2017**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: SHS 1-5 Monitoring
Lab ID: 1706095-001 **Matrix:** AQUEOUS

Client Sample ID: SHS-5
Collection Date: 6/1/2017 2:10:00 PM
Received Date: 6/2/2017 8:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **TOM**	
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/6/2017 11:50:25 AM	32101
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/6/2017 11:50:25 AM	32101
Surr: DNOP	107	86-162		%Rec	1	6/6/2017 11:50:25 AM	32101
SM2340B: HARDNESS						Analyst: **pmf**	
Hardness (As CaCO3)	1100	6.6		mg/L	1	6/6/2017	R43296
EPA METHOD 300.0: ANIONS						Analyst: **MRA**	
Chloride	50	2.5		mg/L	5	6/2/2017 8:37:04 PM	R43225
Sulfate	1200	25	*	mg/L	50	6/6/2017 12:50:37 AM	R43274
SM2510B: SPECIFIC CONDUCTANCE						Analyst: **JRR**	
Conductivity	2600	1.0		µmhos/cm	1	6/5/2017 6:53:26 PM	R43291
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	231.2	20.00		mg/L CaCO3	1	6/5/2017 6:53:26 PM	R43291
Carbonate (As CaCO3)	ND	2.000		mg/L CaCO3	1	6/5/2017 6:53:26 PM	R43291
Total Alkalinity (as CaCO3)	231.2	20.00		mg/L CaCO3	1	6/5/2017 6:53:26 PM	R43291
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	2030	200	*D	mg/L	1	6/8/2017 9:27:00 PM	32171
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.68		H	pH units	1	6/5/2017 6:53:26 PM	R43291
EPA METHOD 200.7: METALS						Analyst: **pmf**	
Calcium	380	10		mg/L	10	6/6/2017 3:24:35 PM	32118
Magnesium	32	1.0		mg/L	1	6/6/2017 3:22:48 PM	32118
Potassium	7.4	1.0		mg/L	1	6/6/2017 3:22:48 PM	32118
Sodium	270	10		mg/L	10	6/6/2017 3:24:35 PM	32118
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/6/2017 4:17:37 PM	R43288
Surr: BFB	107	52.3-138		%Rec	1	6/6/2017 4:17:37 PM	R43288

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706095**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS 1-5 Monitoring

Sample ID	**MB-32118**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**PBW**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:	**6/5/2017**	Analysis Date:	**6/6/2017**	SeqNo:	**1362918** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	**LCSLL-32118**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**BatchQC**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:		Analysis Date:	**6/6/2017**	SeqNo:	**1362919** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0	0.5000	0	102	50	150			
Magnesium	ND	1.0	0.5000	0	104	50	150			
Potassium	ND	1.0	0.5000	0	84.2	50	150			
Sodium	ND	1.0	0.5000	0	103	50	150			

Sample ID	**LCS-32118**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Metals**
Client ID:	**LCSW**	Batch ID:	**32118**	RunNo:	**43296**
Prep Date:	**6/5/2017**	Analysis Date:	**6/6/2017**	SeqNo:	**1362920** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.7	85	115			
Magnesium	50	1.0	50.00	0	100	85	115			
Potassium	48	1.0	50.00	0	96.4	85	115			
Sodium	49	1.0	50.00	0	97.9	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- D Sample Diluted Due to Matrix
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S % Recovery outside of range due to dilution or matrix
- W Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1706095**

ıll Environmental Analysis Laboratory, Inc.

12-Jun-17

Client: Western Refining Southwest, Inc.
Project: SHS 1-5 Monitoring

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43225**	RunNo: **43225**
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361239** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R43225**	RunNo: **43225**
Prep Date:	Analysis Date: **6/2/2017**	SeqNo: **1361240** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.6	90	110			

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R43274**	RunNo: **43274**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362207** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
nt ID: **LCSW**	Batch ID: **R43274**	RunNo: **43274**
.ep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362208** 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	95.1	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706095**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS 1-5 Monitoring

Sample ID **MB-32101**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362105** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.50		0.5000		99.9	86	162			

Sample ID **LCS-32101**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **32101**	RunNo: **43269**
Prep Date: **6/5/2017**	Analysis Date: **6/6/2017**	SeqNo: **1362743** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	72	170			
Surr: DNOP	0.24		0.2500		96.6	86	162			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1706095**

ll Environmental Analysis Laboratory, Inc.

12-Jun-17

Client: Western Refining Southwest, Inc.
Project: SHS 1-5 Monitoring

Sample ID **RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R43288**	RunNo: **43288**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363150** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	22		20.00		109	52.3	138			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R43288**	RunNo: **43288**
Prep Date:	Analysis Date: **6/6/2017**	SeqNo: **1363151** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.55	0.050	0.5000	0	110	79.1	123			
Surr: BFB	25		20.00		123	52.3	138			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1706095**

12-Jun-17

Client: Western Refining Southwest, Inc.

Project: SHS 1-5 Monitoring

Sample ID **mb-1**	SampType: **mblk**	TestCode: **SM2320B: Alkalinity**
Client ID: **PBW**	Batch ID: **R43291**	RunNo: **43291**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362686** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID **lcs-1**	SampType: **lcs**	TestCode: **SM2320B: Alkalinity**
Client ID: **LCSW**	Batch ID: **R43291**	RunNo: **43291**
Prep Date:	Analysis Date: **6/5/2017**	SeqNo: **1362687** Units: **mg/L CaCO3**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.68	20.00	80.00	0	98.4	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

WO#: **1706095**

ll Environmental Analysis Laboratory, Inc.

12-Jun-17

Client: Western Refining Southwest, Inc.
Project: SHS 1-5 Monitoring

Sample ID **MB-32171**	SampType: **MBLK**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **PBW**	Batch ID: **32171**	RunNo: **43363**
Prep Date: **6/7/2017**	Analysis Date: **6/8/2017**	SeqNo: **1365253** 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-32171**	SampType: **LCS**	TestCode: **SM2540C MOD: Total Dissolved Solids**
Client ID: **LCSW**	Batch ID: **32171**	RunNo: **43363**
Prep Date: **6/7/2017**	Analysis Date: **6/8/2017**	SeqNo: **1365254** 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			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1706095 RcptNo: 1

Received By: Erin Melendrez 6/2/2017 8:25:00 AM

Completed By: Ashley Gallegos 6/2/2017 9:46:35 AM

Reviewed By: SRE 06/02/17

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	ENM 06/02/17
8. Are samples (except VOA and ONG) properly preserved?	~~Yes~~ ☑	No ☑	
9. Was preservative added to bottles?	Yes ☑	~~No~~ ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: 1 (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted? Yes
14. Is it clear what analyses were requested?	Yes ☑	No ☐	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	Checked by: ENM

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: ____ Date: ____

By Whom: ____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: ____

Client Instructions: ____

17. Additional remarks: poured off 125mL from provided plastic bottle for metals analysis. Added 0.4 mL HNO3 for proper pH for metals analysis. Held for 24hrs prior to analysis. -ENM 06/02/17 1245

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: Kelly Robinson Western Refining	Turn-Around Time: ☑ Standard ☐ Rush _____
Mailing Address: 111 Road 4990 Bloomfield, NM 87413	Project Name: SHS 1-5 Monitoring
Phone #:	Project #: 12619009
email or Fax#:	Project Manager: Kelly ~~Hunter~~ Robinson
QA/QC Package: ☑ Standard ☐ Level 4 (Full Validation)	Sampler: Michael A Wicker
Accreditation ☐ NELAP ☐ Other _____	On Ice: ☒ Yes ☐ No
☐ EDD (Type) _____	Sample Temperature: 1.9

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1706095	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	General Chemistry	TPH-GRO	TPH-DRO Ext		Air Bubbles (Y or N)
6-1-17	1410	AQ	SHS-5	5	HCl/Cool	-001												X	X	X		

Date	Time	Relinquished by:	Received by:	Date	Time
6-1-17	1635			6/1/17	1638
6/1/17	1857			06/02/17	0825

Remarks: CC: DHensley@LTEnv.com

*General Chemistry: Cl, SO4, Cations, Hardness, Alk, EC, pH, TDS per Devon AMG 06/02/17

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