

**GW – 001**

**River Terrace  
Voluntary Corrective  
Measures Bioventing  
System Annual Report**

**2017**



February 27, 2018

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*Via Certified Mail*  
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**Re: River Terrace Voluntary Corrective Measures  
Bioventing / Air Sparging System Annual Report  
January 2017 through December 2017**

Dear Mr. Kieling and Mr. Chavez,

Western Refining Southwest, Inc. - Bloomfield Terminal submits the River Terrace Voluntary Corrective Measures Bioventing System Annual Report pursuant to Section V.B.1. of the July 2007 Consent Order. This report summarizes monitoring activities and data gathered at the River Terrace throughout 2017.

If you have questions or would like to discuss any aspect of the report, please contact me at (915) 534-1483.

Sincerely,



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





**RIVER TERRACE ANNUAL REPORT**  
**Voluntary Bioventing / Air Sparging System**

**January – December 2017**

**Bloomfield Terminal**  
**(Former Bloomfield Refinery)**

**Western Refining Southwest, Inc.**  
**#50 Rd 4990**  
**Bloomfield, New Mexico 87413**

**Submitted: March 2018**



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# List of Acronyms

benzene, toluene, ethylbenzene, and total xylene (BTEX)

below grade surface (bgs)

biovent well (BV)

carbon dioxide (CO<sub>2</sub>)

central federal register (CFR)

cubic feet per second (cfs)

dewatering well (DW)

diesel range organics (DRO)

dissolved oxygen (DO)

feet (ft)

degrees Fahrenheit (°F)

gasoline range organics (GRO)

granulated activated carbon (GAC)

investigation derived waste (IDW)

liters (L)

liquid petroleum gas (LPG)

maximum contaminant level (MCL)

methyl tert-butyl ether (MTBE)

micrograms per liter (ug/L)

micro mhos per centimeter (umhos/cm)

milligrams per liter (mg/L)

millivolts (mV)

monitoring well (MW)

motor oil range organics (MRO)



New Mexico Administrative Code (NMAC)

No Product Present (NPP)

New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB)

Oxidation reduction potential (ORP)

parts per million (ppm)

photoionization detector (PID)

polyvinyl chloride (PVC)

pounds per square inch (psi)

Resource Conservation and Recovery Act (RCRA)

separate phase hydrocarbon (SPH)

Solid Waste Management Units (SWMUs)

Temperature (TEMP)

Temporary piezometer (TP)

top of casing (TOC)

total petroleum hydrocarbon (TPH)

United States Environmental Protection Agency (USEPA)

Water Quality Control Commission (WQCC)



# Executive Summary

This Report is a summary of monitoring activities conducted in 2017 at the River Terrace Bioventing / Air Sparging System located at the Bloomfield Terminal (Former Bloomfield Refinery). The following is a synopsis of activities performed at the River Terrace in 2017.

## Groundwater Monitoring

Groundwater samples were collected at specific wells and analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether (MTBE), Total Petroleum Hydrocarbons (TPH) Diesel Range Organics (DRO), TPH Gasoline Range Organics (GRO), TPH Motor Oil Range Organics (MRO), and total lead. The analytical results for samples collected in 2017 during San Juan River low flow conditions were below their respective screening levels with the following exceptions:

- Xylenes were detected at concentrations above the respective WQCC screening level of 0.62 mg/L at one location (TP-5). The concentration of xylene detected was 3.100 mg/L.
- Lead was detected at concentrations above the respective MCL (0.0150 mg/l) at TP-5, TP-6, TP-7, TP-8, TP-9, and MW-49. The detected concentrations ranged between 0.0068 mg/l and 0.068 mg/l, with the highest concentration detected at TP-5.
- In addition, TPH-DRO was detected above the NMED screening level (0.039 mg/l) at TP-5, TP-6, and TP-8. The detected concentrations ranged between 1.3 mg/l and 1.7 mg/l, with the highest concentration detected at TP-6. TPH-GRO was detected above the respective laboratory reporting limit at TP-5, TP-6, TP-7, TP-8, and DW-3. The detected concentrations ranged between 0.099 mg/l and 13 mg/l, with the highest concentration detected at TP-5.

Pursuant to comments received from NMED (dated August 18, 2017) on the previous three River Terrace Annual Monitoring Reports, Western undertook collection of additional groundwater samples from the groundwater collection gallery and wells DW-2 and DW-3. These are the three locations where groundwater is being recovered. The screening level for TPH-DRO was exceeded at DW-2 (reported concentration of 0.4 mg/l) and the lead screening level was exceeded in the groundwater sample collected at the collection galley (reported concentration of 0.11 mg/l).



## **Soil Vapor Monitoring**

Soil gas monitoring is no longer conducted at the River Terrace. In a response letter dated June 15, 2015 NMED agreed soil gas analytical results do not provide any additional information regarding subsurface conditions at the River Terrace System.

## **Biovent / Air Sparging System Monitoring**

The River Terrace System currently consists of the following:

- Five biovent wells (BV-1, BV-3, BV-4, BV-5, and BV-6);
- Ten temporary piezometers (TP-3, and TP-5 thru TP-13);
- Three dewatering wells (DW-1, DW-2, and DW-3);
- Two monitoring wells (MW-48, and MW-49);
- Two air sparging lines (Air Sparging Line A, and Air Sparging Line B); and
- One groundwater collection gallery.

The active dewatering system consists of two dewatering wells (DW-2 and DW-3) and a collection gallery, each equipped with variable-speed submersible pumps. Groundwater pumped by the dewatering system is pumped through two GAC filters operating in series before discharging into the facility raw water ponds. The purpose of the dewatering system is to enhance the effectiveness of the bioventing system by dewatering the influenced area, and also remove impacted groundwater for treatment. A total of 312,151 gallons of impacted groundwater was removed and treated through the GAC filters in 2017. Results from the analytical sampling of the GAC system show that the GAC filters continue to be effective in treating the extracted groundwater prior to discharging into the facility raw water ponds.

The air injection system ran consistently throughout 2017 and required no changes to the air distribution. Pressure readings collected at the BV wells and air sparging lines remain consistent at or near 2.0 psi when compared to readings collected in 2016. The discharge pressure reading at the main air blower was 2.8 psi. The consistent pressure affirms that there exists an even distribution of air throughout the biovent / air sparging area of influence. The small variance of pressure between the point directly downstream of the main air blower and at various points along the system shows that there is no evidence of large air losses within the air system.



# Section 1

## Introduction

### 1.1 Site Location and Description

Owner: San Juan Refining Company, a New Mexico Corporation  
1250 Washington Street  
Tempe, Arizona 85281

Operator: Western Refining Southwest, Inc.  
(Formerly Giant Industries Arizona, Inc.), an Arizona Corporation  
1250 Washington Street  
Tempe, Arizona 85281

Facility: Bloomfield Terminal (Former Bloomfield Refinery) (physical address)  
# 50 Road 4990  
Bloomfield, New Mexico 87413

Western Refining Southwest, Inc. (postal address)  
P.O. Box 159  
Bloomfield, New Mexico 87413

US EPA ID: NMD089416416

SIC Code: 5171 (Previously Operated under 2911)

The former Bloomfield Refinery facility is currently owned by San Juan Refining Company, a New Mexico corporation, and operated by Western Refining Southwest, Inc. formerly known as Giant Industries Arizona, Inc., an Arizona corporation. The former Bloomfield Refinery had an approximate refining capacity of 18,000 barrels per day. Various process units operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization, and diesel hydrotreating. Products produced at the refinery included gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils, and LPG.

The Facility is located on approximately 263 acres south of Bloomfield, New Mexico in San Juan County (Figure 1). The Facility complex is bisected by County Road 4990 (Sullivan Road), which runs east-west. The former process units, tank farm, wastewater treatment system, raw water ponds, and fire training area are located north of the county road. The crude oil and product unloading areas, loading racks, maintenance buildings/90-day storage area, pipeline



offices, transportation truck shop, and Class I injection well are located south of the country road (Figure 2).

The facility is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. Based on the available site-specific and regional subsurface information, the site is underlain by the Quaternary Jackson Lake terrace deposits, which unconformably overlie the tertiary Nacimiento Formation. The Jackson Lake deposits consist of fine grained sand, silt, and clay that grades to coarse sand, gravel and cobble size material closer to the contact with the Nacimiento Formation. The Jackson Lake Formation is over 40 feet thick near the southeast portion of the site and generally thins to the northwest toward the San Juan River. The Nacimiento Formation is primarily composed of fine grained materials (e.g., carbonaceous mudstone/claystone with interbedded sandstones) with a reported local thickness of approximately 570 feet (Groundwater Technology, 1994).

The River Terrace Area is located north of the Hammond Ditch, approximately 120 feet lower in elevation than the former Refinery process and tank farm areas. Since 2006, Western has operated a bioventing system for the purpose of providing oxygen to the subsurface and supporting aerobic biodegradation of petroleum hydrocarbons that were identified in soil along the western portion of the River Terrace to a depth of approximately 8 feet below existing grade surface (bgs). Impacted groundwater was also recovered and treated using granular activated carbon (GAC).

In 2013, optimization activities to the biovent system were completed, which included removal of impacted soil, installation of an air sparging system, and installation of an additional dewatering well (DW-3). These enhancements allowed for the system to continue to target the subsurface soils, as well as enhance the groundwater remediation efforts through additional pumping and air sparging.

The River Terrace System currently consists of the following:

- Five biovent wells (BV-1, BV-3, BV-4, BV-5, and BV-6);
- Ten temporary piezometers (TP-3, and TP-5 thru TP-13);
- Three dewatering wells (DW-1, DW-2, and DW-3);
- Two monitoring wells (MW-48, and MW-49);
- Two air sparging lines (Air Sparging Line A, and Air Sparging Line B); and



- One groundwater collection gallery.

The active dewatering system consists of two dewatering wells (DW-2 and DW-3) and a collection gallery, each equipped with variable-speed submersible pumps. The collection gallery, consisting of a horizontal 4-inch perforated pipe with an 8-inch diameter vertical riser pipe and submersible pump, was installed and placed into operation by early October 2009. Dewatering well DW-3 was installed as part of the most recent optimization activities, and is constructed with a 4-inch machine slotted PVC well casing that is placed inside a 5.5-inch diameter steel pipe. The steel pipe is packed with pebbles, allowing for better groundwater pumping efficiency.

The dewatering wells operate off of independent level control systems. As each individual pump senses a low water column level, the pump will shut down for a period of time to allow the well to recover before resuming pumping. The cycle of operation frequency for the dewatering pumps is directly reflective of the operational level of the San Juan River. Groundwater pumped by the dewatering system is pumped through two GAC filters operating in series before discharging into the facility raw water ponds. The purpose of the dewatering system is used to enhance the effectiveness of the bioventing system by dewatering the influenced area and also remove impacted groundwater for treatment.

Installation of the air sparging component of the biovent system was completed in late 2012, and consists of two air sparging lines (Air Sparging Line A and Air Sparging Line B). Each air sparging line consists of air sparging tubes that extend down into the groundwater (Western Refining, 2013). Air from the biovent main air blower is pushed into each sparging tube, causing a bubbling effect in the groundwater while also oxygenating the surrounding subsurface.

The biovent portion of the system continues to remain active, although the majority of the impacted soils within the subsurface were removed as part of the completed optimization activities. The main air blower injects air into the subsurface (vadose and phreatic zones) through the BV wells. The air supply promotes aerobic biodegradation within the subsurface.



## **Section 2**

### **Background**

This section presents a summary of the events and activities conducted at the River Terrace Area since 1999.

#### **1999**

- Installation of a bentonite slurry and sheet pile barrier wall adjacent to the San Juan River was completed. The barrier extends approximately 35 feet below the ground surface, and extends around the perimeter of the riverbank from the bluff opposite the west end of the process area to the river inlet station. The bentonite slurry and sheet pile barrier wall was installed to prevent hydrocarbons from migrating into the San Juan River.

#### **2004**

- Two groundwater monitoring wells (MW-48 and MW-49) were installed in October 2004 to replace two piezometers (P-4 and P-5). Additionally in October 2004, eight temporary piezometers were installed (TP-1 through TP-8). The purpose of installing the monitoring wells and piezometers was to determine the extent of hydrocarbon impacts in soil on the refinery side of the bentonite slurry wall and sheet pile barrier.

#### **2005**

- Bloomfield Refinery initiated construction of the River Terrace Bioventing Project to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons existing in the soil and groundwater at the River Terrace. Construction activities included the following:
  - Installation of five additional piezometers (TP-9 through TP-13) within the eastern portion of the River Terrace area in April 2005.
  - Construction of an aeration system designed to increase bioremediation in the subsurface. The aeration system included installation of 13 bioventing wells (BV-1 through BV-13), all located within the western portion of the River Terrace area. The bioventing wells were installed in August 2005.
  - Construction of a dewatering system designed to expand the bio-remedial vadose zone. The dewatering system included installation of two dewatering wells (DW-1 and DW-2). The dewatering wells were installed in August 2005.

#### **2006**

- Operation of the Bioventing System commenced in January 2006. System monitoring activities were conducted in compliance with the approved River Terrace Voluntary



Corrective Measures Monitoring Plan (Revised) dated October 28, 2005 (Malcolm Pirnie, 2005).

- An In-Situ Respiration Test was conducted in May 2006. The results of the In-Situ Test were used to evaluate progress of the bio-remedial activity.
- Quarterly performance monitoring was conducted in March, June, September, and December of 2006.

## **2007**

- Quarterly performance monitoring of the Bioventing System was conducted in February, June, August, and October 2007.
- An In-Situ Respiration Test was conducted in September 2007. The results of the In-Situ Test were used to evaluate progress of the bio-remedial activity.
- The dewatering pumps were replaced in February 2007.
- Breakthrough in the lead GAC (V-612) was detected in April 2007. Upon confirmation of breakthrough, GAC filter V-611 became the lead GAC filter. V-612 was replaced and placed back in service in June as the lag filter.

## **2008**

- Quarterly performance monitoring activities for the Bioventing System were conducted in March, May, July, and November 2008.
- The aeration system blower bearings were replaced in February 2008.
- The monitoring well MW-48 dewatering pump was replaced in August 2008.
- Blower piping was upgraded in October 2008.

## **2009**

- Quarterly performance monitoring for the Bioventing System was conducted in March, April, September, and October 2009.
- An In-Situ Respiration Test was conducted during the week of October 26, 2009.
- In order to improve and optimize the dewatering system, a collection gallery, pump, and piping system were installed in the southwest portion of the River Terrace and put in service October 13, 2009.



## 2010

- Quarterly performance monitoring for the Bioventing System was conducted in March, April, July, and October of 2010.
- Following suspension of refining operations on November 23, 2009, operation of the River Pump station decreased, thus impacting the frequency of the River Terrace dewatering system. Although the aeration system continued to operate consistently, operation of the dewatering system has become infrequent due to the decreased demand for fresh water to support current facility operations.

## 2011

- In March 2011, Western received approval from NMED-HWB to modify the piping of the River Terrace dewatering system. Piping modifications included installation of a 3,000-gallon surge tank and booster pump, which allows the treated water from the River Terrace dewatering system to discharge directly into the Refinery's fresh water ponds. Piping modifications were completed in April 2011.
- Approved modifications to on-going monitoring at the River Terrace (NMED, 2011) were implemented as part of the 2011 sampling program for the River Terrace. The approved sampling modifications included the following:
  - Soil gas sampling to be conducted annually at all TP wells, DW-1, and MW-49. The sampling is to be performed during San Juan River low flow conditions;
  - Soil gas monitoring (O<sub>2</sub>, CO<sub>2</sub>, and PID readings) for TP-1, TP-2, DW-1, MW-49, and TP-5 through TP-9 is to be performed semi-annually. The monitoring is to be performed during San Juan River high and low flow conditions;
  - Groundwater monitoring of TP-3, -7, -9, -10, -11, -12, -13, and DW-1 is to be conducted biennially (beginning 2011). Samples are to be collected during low flow conditions of the San Juan River;
  - Groundwater monitoring of TP-1, -2, -5, -6, -8, and MW-49 is to be conducted semi-annually. The monitoring is to be performed during San Juan River high and low flow conditions;
  - Discontinue analysis of barium and chromium analysis for all TP wells, MW-49, and DW-1; and
  - Samples at the GAC in-let, outlet of lead vessel, and outlet of lag vessel are to be collected quarterly.
- High and low flow monitoring events were conducted in June 2011 and July 2011, respectively.
- Quarterly performance monitoring of the Biovent System GAC filters inlet and outlet occurred in March, May, July, and October of 2011.



- Additional samples outside of what was required were collected at the discharge of the lead GAC filter on a monthly basis, with the exception that a sample was not collected in April 2011 due to the dewatering system being off-line.

## **2012**

- In June 2012, the lead GAC filter was exchanged for a new filter. The biovent dewatering system consists of two GAC filters that operate in series. The new filter was placed in the lag position, and the previous lag filter was placed in the lead position.
- In October 2012, Western submitted a Work Plan that summarized proposed activities to optimize the remediation progress at the River Terrace. Approval of the Work Plan was issued by NMED-HWB on October 12, 2012. Field activities commenced on October 20, 2012 and included the following activities:
  - Removal of impacted clay soil at the River Terrace;
  - Installation of a sparging piping to target areas of the river terrace where groundwater is impacted;
  - Decommissioning of TP-1, TP-2, BV-2, and BV-7 through BV-13 in association with the excavation activities; and
  - Air Sparging Line A and Air Sparging Line B were added to system.

## **2013**

- Western completed and put into service dewatering well DW-3 located within the southwest corner of the River Terrace. This new dewatering well adds additional value to the current dewatering system at the river terrace as historical analysis have shown this area to contain higher concentrations of impacted groundwater.
- The High Flow Monitoring Event did not take place in 2013. The one week spring peak release (5,000 cfs) did not take place because of the threat of a water shortage in the San Juan River Basin. San Juan County is experiencing a severe drought.

## **2014**

- Quarterly performance monitoring of the GAC filters for the Bioventing System was conducted in March, April, July, and October of 2014.
- The High Flow Monitoring Event did not take place in 2014. The one week spring peak release (5,000 cfs) did not take place because of the threat of a water shortage in the San Juan River Basin. San Juan County was experiencing a severe drought.



## **2015**

- Monthly and Quarterly performance monitoring of the GAC filters for the Bioventing System was conducted. Samples in addition to the required frequency were collected at the GAC filters to monitor their operations.
- The High Flow Monitoring Event did not take place in 2015. The one week spring peak release (5,000 cfs) did not take place because of the threat of a water shortage in the San Juan River Basin.
- General pump maintenance was performed on the recovered water transfer pump in March 2015.
- A section of the blower discharge piping was replaced due to a crack at a joint connection.
- Western received approval to discontinue sampling of groundwater at piezometers TP-3, TP-10, TP-11, TP-12, and TP-13; however groundwater elevation information will continue to be collected from these locations (NMED, 2015).
- Western received approval to discontinue soil gas monitoring at the River Terrace System (NMED, 2015).
- Western received approval not to replace TP-2 with an additional well until further notice (NMED, 2015).

## **2016**

- Monthly and Quarterly performance monitoring of the GAC filters for the Bioventing System was conducted. Samples in addition to the required frequency were collected at the GAC filters to monitor their operations.

## **2017**

- Quarterly performance monitoring of the GAC filters for the Bioventing System was conducted. In addition and beyond the required frequency, monthly samples were collected at the GAC inlet and GAC lead filter.
- The low-flow groundwater sampling event was conducted in April 2017. A special groundwater sampling event was conducted in December 2017 pursuant to recently received NMED comments on past monitoring reports.



## Section 3

### Performance Monitoring

Performance monitoring at the River Terrace area includes collecting groundwater samples for laboratory analysis, collecting field measurement and system readings, and evaluating system treatment performance by the GAC filter system. The location of the river terrace wells and aeration system is shown in Figure 3 and Figure 4. A summary of the field methods used to conduct performance monitoring at the River Terrace is provided in Appendix A. The following is a summary of monitoring activities conducted at the River Terrace area in 2017.

#### 3.1 Groundwater Monitoring

Groundwater samples were collected in April 2017 during low flow operation of the San Juan River [i.e., with a river flow rate of approximately 500 cubic feet per second (cfs)] for all required wells except TP-7 and DW-1, which were inadvertently omitted as they are only sampled on a bi-annual basis. Groundwater samples were collected at TP-7 and DW-1 in December, 2017. Pursuant to comments received from NMED (dated August 18, 2017) on the previous three River Terrace Annual Monitoring Reports, in December 2017 additional groundwater samples were collected from the groundwater collection gallery and wells DW-2 and DW-3. The following is a summary of activities performed during the groundwater monitoring event conducted in 2017.

##### 3.1.1 *Groundwater Measurements*

Depth-to-groundwater and depth-to-product measurements were collected from TP-3, TP-5 through TP-13, DW-1, DW-3, and MW-49. No product was detected in any of the wells. The measurements were collected prior to the collection of groundwater samples during the San Juan River low flow sampling events. The groundwater measurements are provided in Table 1.

##### 3.1.2 *Groundwater Field Parameters*

Groundwater field parameters (temperature, pH, conductivity, DO, and ORP) were collected prior to collecting groundwater samples. Groundwater field parameters were collected from TP-5 thru TP-9, DW-1, DW-2, DW-3, MW-49, and the collection gallery. A summary of the groundwater field parameters collected during the sampling events are included in Table 1.



### **3.1.3 Groundwater Sampling**

Groundwater samples were collected from TP-5, TP-6, TP-7, TP-8, TP-9, DW-1, DW-2, DW-3, MW-49, and the collection gallery. Groundwater samples were submitted to Hall Environmental Analytical Laboratory and analyzed for the following constituents:

- Volatile Organic Compounds – BTEX and MTBE by EPA Method 8260,
- TPH – GRO by EPA Modified Method 8015D,
- TPH – DRO by EPA Modified Method 8015D,
- TPH – MRO by EPA Modified Method 8015D, and
- Total lead by EPA Method 6010B.

A summary of the groundwater analyses is provided in Table 1 and the analytical reports are provided as Appendix B.

## **3.2 Soil Vapor Monitoring**

Soil gas Monitoring is no longer conducted at the River Terrace. In a response letter dated June 15, 2015 NMED-HWB agreed soil gas analytical results do not provide any additional information regarding subsurface conditions at the River Terrace System.

## **3.3 Bioventing / Air Sparging System Performance Monitoring**

### **3.3.1 GAC Sampling**

Extracted groundwater from the active dewatering wells and collection gallery is treated prior to discharging to the raw water ponds, located within the east portion of the terminal. Extracted groundwater is pumped through two granular activated carbon (GAC) filters positioned in series for removal of dissolved-phase hydrocarbons.

GAC influent (GAC-Inlet) samples, lead GAC filter effluent samples (GAC-Lead) and GAC effluent samples (GAC-Lag) are required to be collected quarterly. Additional monthly samples were collected at the GAC Inlet and GAC lead filter to monitor system performance. Samples were submitted to Hall Environmental Analytical Laboratory and analyzed for the following parameters:

- Volatile Organic Compounds – BTEX and MTBE by EPA Method 8260
- Total Petroleum Hydrocarbons – TPH-GRO, TPH-DRO, and TPH-MRO by EPA Method 8015D



Detected concentrations of TPH, BTEX and MTBE at the inlet of the GAC filters were below the respective screening levels in 2017, with the exception of xylenes and TPH-DRO as shown in Table 2. The concentrations of xylenes decreased significantly during the year to well below the action level, while the concentrations of TPH-DRO also decreased but remained above the screening level. The analytical results for the lead GAC filter samples were mostly non-detect with all reported concentrations well below the screening levels. All sample results for the Lag GAC filter were non-detect.

The total amount of groundwater extracted and pumped through the GAC filter system is monitored via a downstream in-line totalizer meter prior to discharging into the facility raw water ponds. A total of 312,151 gallons of impacted groundwater was removed and treated through the GAC filters in 2017.

### *3.3.2 Aeration System Monitoring*

The effectiveness of the air system was monitored using a portable pressure gauge at various points along the air injection piping system. Pressure measurements were collected at BV-1, BW-3, BV-4, BV-5, BV-6, Air Sparging Line A, Air Sparging Line B, and at the discharge of the main air blower. The readings are used to ensure a uniform distribution of air throughout the system and are summarized in Table 3. As the data for 2016 was not included in 2016 Annual Monitoring Report, it has been included with the 2017 data.

### *3.3.2 In-Situ Respiration Test*

Western has conducted three separate in-situ respiration tests at the River Terrace area. The three tests were conducted in May 2006, September 2007, and October 2009. The suspension of refining operations causes the water-supply dewatering system to operate intermittently, which in turn affects exposure of the vadose zone thus affecting the accuracy of the in-situ respiration test. In a response letter from NMED dated November 23, 2010 (NMED, 2010), NMED-HWB granted approval to discontinue conducting the in-situ respiration tests. Therefore an in-situ respiration was not performed in 2017.



## Section 4

# Conclusions and Recommendations

This section summarizes and provides an evaluation of the results shown in field monitoring data and analytical data. The analytical reports for groundwater are provided in Appendix B

### 4.1 Conclusions

#### 4.1.1 Groundwater Monitoring

Groundwater samples were collected at specific wells and analyzed for BTEX, MTBE, TPH-DRO, TPH-GRO, TPH-MRO, and total lead. The analytical results for samples collected in 2017 during San Juan River low flow conditions were below their respective screening levels with the exceptions discussed below.

Xylenes were detected at concentrations above the respective WQCC screening level of 0.62 mg/L at one location (TP-5). The concentration of xylene detected was 3.1 mg/L. The monitoring data presented in Table 1 was expanded for TP-5 to show all sample results since the temporary piezometer was installed in 2005. The concentration of xylenes decreased significantly from the initial sampling in 2005 from 21 mg/l down to approximately 0.5 mg/l with the concentration remaining relatively stable from April 2012 through April 2014. The concentrations have recently increased, starting in 2015.

Lead was detected at concentrations above the respective MCL (0.0150 mg/l) at routine monitoring locations TP-5, TP-6, TP-7, TP-8, TP-9, and MW-49. The detected concentrations ranged between 0.0068 mg/l and 0.068 mg/l, with the highest concentration detected at TP-59.

In addition, TPH-DRO was detected above the NMED screening level (0.039 mg/l) at TP-5, TP-6, and TP-8. The detected concentrations ranged between 1.3 mg/l and 1.74 mg/l, with the highest concentration detected at TP-6. TPH-GRO was detected above the respective laboratory reporting limit at TP-5, TP-6, TP-7, TP-8, and DW-3. The detected concentrations ranged between 0.099 mg/l and 13 mg/l, with the highest concentration detected at TP-5.

Pursuant to comments received from NMED on previous River Terrace Annual Monitoring Reports, additional groundwater samples were collected from the collection gallery and wells DW-2 and DW-3. These are the three locations where groundwater is being recovered. The screening level for TPH-DRO was exceeded at DW-2 (reported concentration of 0.4 mg/l) and



the lead screening level was exceeded in the groundwater sample collected at the collection galley (reported concentration of 0.11 mg/l).

Table 1 provides a summary of the analytical groundwater results. A concentration map showing the benzene, toluene, ethylbenzene, xylenes, and TPH-DRO concentrations for the River Terrace wells during low flow conditions is provided in Figure 5.

#### *4.1.2 Soil Vapor Monitoring*

Soil gas monitoring is no longer conducted at the River Terrace.

#### *4.1.3 Bioventing / Air Sparging Performance Monitoring*

### Groundwater Treatment System

A total of 312,151 gallons of impacted groundwater was removed and treated through the GAC filters. The presence of constituents above the screening levels in the GAC inlet samples indicates the groundwater recovery system remains effective in capturing and removing contaminant mass. The decreasing concentrations in samples collected at the GAC inlet, as well as in individual wells, also shows the effectiveness of the system since installation.

### Aeration System

The air injection system ran consistently throughout 2017 and required no changes to the air distribution. Pressure readings collected at the BV wells and air sparging lines remain generally consistent near or at 2.0 psi when compared to readings collected in 2016. The discharge pressure reading at the main air blower was 2.8 psi. The consistent pressure affirms that there exists an even distribution of air throughout the biovent / air sparging area of influence. The small variance of pressure between the point directly downstream of the main air blower and at various points along the system shows there is no evidence of large air losses within the air system.

## **4.2 Recommendations**

Based on a review of the 2017 monitoring data, the following actions are recommended:

- An evaluation of the increasing xylenes concentrations in groundwater samples collected at TP-5 should be conducted;



- The detections of lead above the action level should be assessed. The groundwater samples are routinely collected with bailers and this may be causing sediment to be entrained in the samples analyzed for total metals.

Concentrations in the extracted groundwater and at the monitoring wells, with the exception of TP-5, remain relatively low. Western will continue to look for means of optimizing the air sparging system to increase remediation efficiency.



## Section 5

### References

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Western Refining, 2012, Group 7 – SWMU No. 17 River Terrace Area Remediation System Optimization Work Plan.

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NMED, 2015, Approval River Terrace Voluntary Corrective Measures Bioventing System Annual Report (January-December 2013), March 2014 Western Refining Southwest Inc., Bloomfield Refinery.

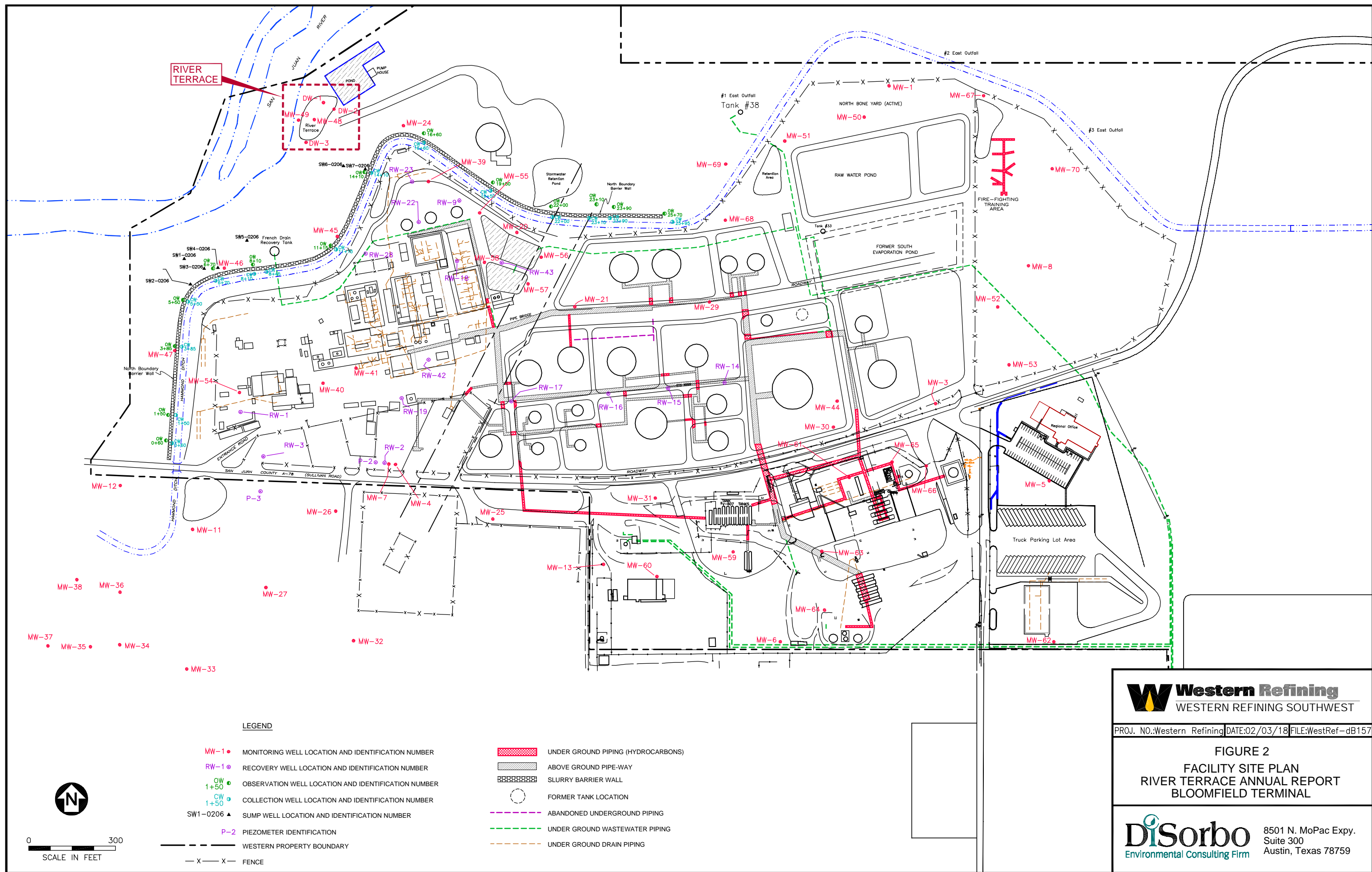


## **FIGURES 1 – 5**





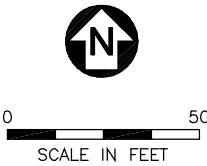








Map Source: Google Aerial, 03-15-2015.



LEGEND

- BV-1 BIOVENTING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-2 ACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-1 INACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER

- MW-48 MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- TP-5 TEMPORARY WELL LOCATION AND IDENTIFICATION NUMBER



PROJ. NO.:Western Refining DATE:02/03/18 FILE:WestRef-dB158

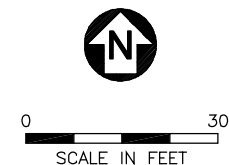
FIGURE 3  
RIVER TERRACE WELL LOCATION MAP  
RIVER TERRACE ANNUAL REPORT  
BLOOMFIELD TERMINAL

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





Map Source: Google Aerial, 03-15-2015.



#### LEGEND

- BV-1 BIOVENTING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-2 ACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-1 INACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER
- MW-48 MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- TP-5 TEMPORARY WELL LOCATION AND IDENTIFICATION NUMBER



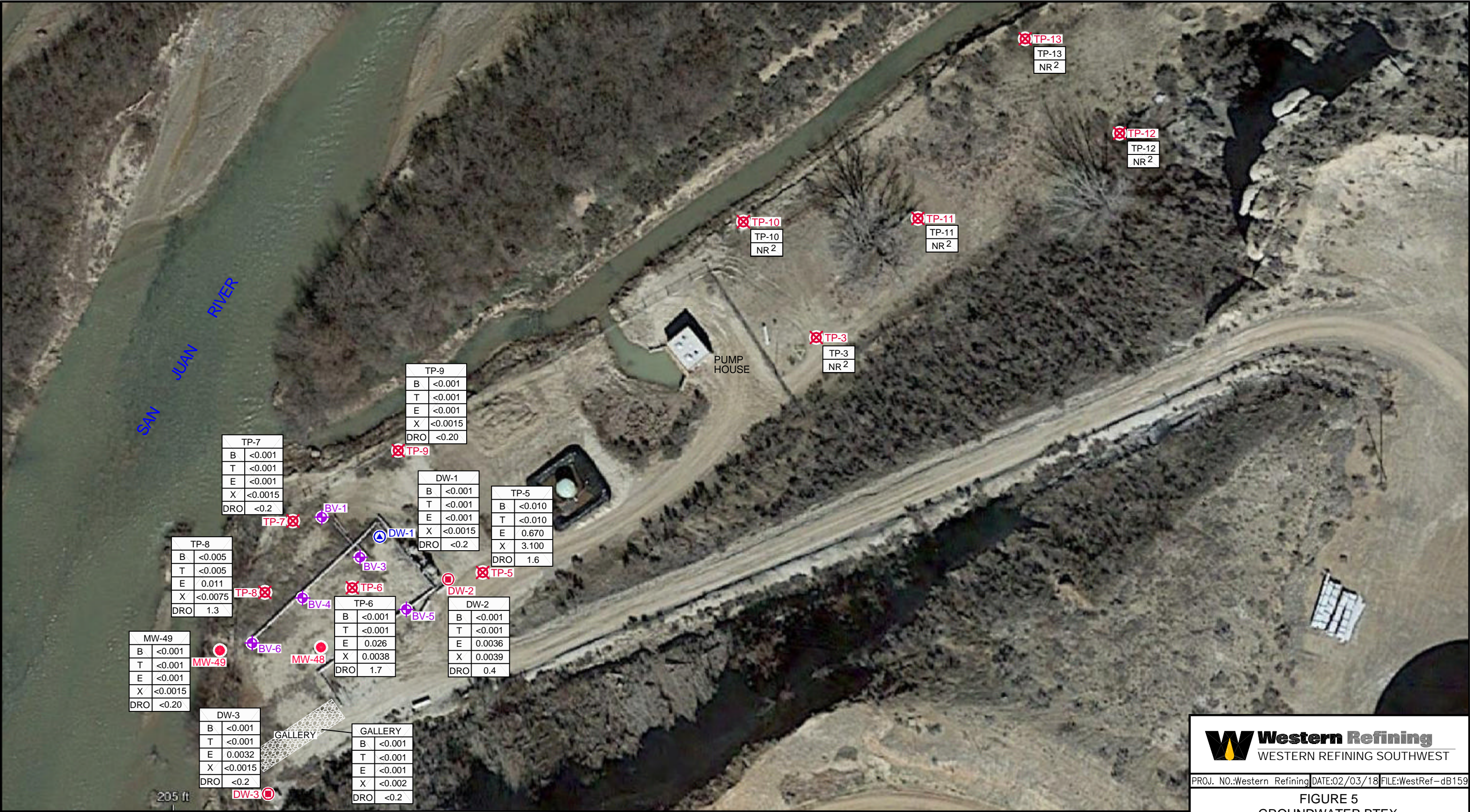
PROJ. NO.:Western Refining|DATE:02/03/18|FILE:WestRef-dA131

#### FIGURE 4 BIOVENT / AIR SPARGE SYSTEM LAYOUT RIVER TERRACE ANNUAL REPORT BLOOMFIELD TERMINAL

**DiSorbo**  
Environmental Consulting Firm

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





Map Source: Google Aerial, 03-15-2015.



0 50  
SCALE IN FEET

**LEGEND**

- BV-1** BIOVENTING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-2** ACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER
- DW-1** INACTIVE DE-WATERING WELL LOCATION AND IDENTIFICATION NUMBER

- MW-48** MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- TP-5** TEMPORARY WELL LOCATION AND IDENTIFICATION NUMBER

B	BENZENE
T	TOLUENE
E	ETHYLBENZENE
X	XYLENES
DRO	DIESEL RANGE ORGANICS

NR<sup>2</sup> NOT REQUIRED (APPROVAL WITH DIRECTION - MAY 2011)  
(ALL CONCENTRATIONS IN mg/L)

NOTE:  
SAMPLES COLLECTED APRIL 2017,  
EXCEPT DW-1, DW-2, TP-7 AND  
GALLERY COLLECTED DEC. 2017



PROJ. NO.:Western Refining DATE:02/03/18 FILE:WestRef-dB159

**FIGURE 5**  
**GROUNDWATER BTEX**  
**CONCENTRATION MAP**  
**RIVER TERRACE ANNUAL REPORT**  
**BLOOMFIELD TERMINAL**



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



**TABLE 1**  
**GROUNDWATER MONITORING DATA SUMMARY**



TABLE 1  
2017 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	NMED Soil Screening Guidance	NMED Soil Screening Guidance Table 6-4			40 CFR 141.62 (MCL)		
											0.005	0.75	0.700	0.620	0.014	0.04		0.04	0.0150	0.002	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	DO (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	Lead (mg/L)	Mercury (mg/L)	
TP-1	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
TP-2	***Decommissioned November 2012	November 2012	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***	***
TP-3 (Bi-Annual)	2017	04/28/17	7.16	NPP	12.35	Groundwater Sampling Discontinued (NMED, 2015)															
	2016	04/27/16	7.15	NPP	12.35	Groundwater Sampling Discontinued (NMED, 2015)															
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	7.53	NPP	12.35	891	2.56	29.3	7.69	54.7	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.05	< 2.5	<0.005	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	7.11	NPP	12.35	421	2.06	62	7.47	66.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.05	< 2.5	0.0051	NR <sup>2</sup>	
TP-5	Low Flow 2017	Week of 04/26/17	4.91	NPP	8.84	1,165	2.37	-204	7.19	56.3	<0.010	<0.010	0.670	3.100	<0.010	1.6	13	< 2.5	0.068	NR <sup>2</sup>	
	Low Flow 2016	Week of 04/28/16	4.87	NPP	8.84	815	1.24	-279	7.03	56.2	<0.010	<0.010	0.300	1.800	<0.010	1.4	11	< 2.5	0.027	NR <sup>2</sup>	
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	5.13	NPP	8.84	828	2.28	-257	7.56	55.1	<0.010	<0.010	0.063	1.300	<0.010	0.75	7.1	< 2.5	0.019	NR <sup>2</sup>	
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	5.19	NPP	8.84	526	0.34	-251	7.30	53.7	<0.005	<0.005	0.027	0.450	<0.005	2.2	4.0	< 2.5	0.012	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	4.95	NPP	8.84	431	2.55	-210	7.56	68.1	<0.010	<0.010	0.022	0.590	<0.010	0.69	4.6	< 2.5	0.013	NR <sup>2</sup>	
	High Flow 2012	Week of 05/29/12	3.42	NPP	8.84	470	1.48	-33	6.30	61.1	<0.005	<0.005	0.017	0.450	<0.005	1.10	4.20	< 2.5	0.0260	NR <sup>2</sup>	
	Low Flow 2012	Week of 04/09/12	5.09	NPP	8.84	363	0.93	-266	6.80	50.9	<0.005	<0.005	0.020	0.410	<0.005	0.60	1.80	< 2.5	0.3600	NR <sup>2</sup>	
	Low Flow 2011	Week of 07/26/11	5.69	NPP	8.84	932	1.78	192	6.70	68.5	<0.010	<0.01	0.051	1.200	<0.025	0.24	4.9		0.0550	NR <sup>2</sup>	
	High Flow 2011	Week of 06/13/11	4.95	NPP	8.84	561	0.72	273	6.95	62.2	<0.010	<0.01	0.350	4.200	<0.025	3.20	20		0.0580	NR <sup>2</sup>	
	4th Quarter 2010	Week of 10/18/10	5.65	NPP	8.84	632	2.06	71	7.01	68.2	<0.005	<0.01	0.830	8.000	<0.025	3.10	30		0.0230	NR	
	3rd Quarter 2010	Week of 07/20/10	5.11	NPP	8.84	707	1.11	84	6.79	65.8	<0.005	<0.01	0.310	8.300	<0.025	3.10	26		0.0830	NR	
	2nd Quarter 2010	Week of 04/19/10	5.98	NPP	8.84	590	0.58	121	7.02	54.1	<0.005	<0.010	1.600	13.000	<0.025	9.00	38		0.1300	NR	
	1st Quarter 2010	Week of 03/08/10	4.41	NPP	8.84	807	0.67	253	7.05	48.5	<0.005	0.0078	0.150	1.100	<0.013	9.10	31		0.0430	NR	
	4th Quarter 2009	Week of 10-05-09	4.57	NPP	8.84	759	4.57	212	6.76	67.4	<0.005	<0.01	1.900	15.000	<0.025	7.10	40		0.0250	NR	
	3rd Quarter 2009	Week of 09/10/09	4.54	NPP	8.84	794	1.12	152	7.04	72.6	<0.005	<0.01	1.300	13.000	<0.025	8.00	33		0.0330	NR	
	2nd Quarter 2009	Week of 04/20/09	4.96	NPP	8.84	1128	0.69	106	6.69	55.2	0.025	0.011	2.400	15.000	<0.025	11.00	49		0.0260	NR	
	1st Quarter 2009	Week of 03/02/09	4.86	NPP	8.84	1092	3.33	176	7.07	49.2	0.019	<0.01	1.800	14.000	<0.025	12.00	37		0.0260	NR	
	4th Quarter 2008	Week of 11/10/08	4.54	NPP	8.84	981	1.23	129	6.83	61.8	0.016	0.01	2.400	12.000	<0.025	8.50	38		0.0290	NR	
	3rd Quarter 2008	Week of 07/14/08	4.76	NPP	8.84	852	1.49	159	6.95	69.8	<0.02	<0.02	1.900	18.000	<0.05	1.10	50		0.0430	NR	



TABLE 1  
2017 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	NMED Soil Screening Guidance	NMED Soil Screening Guidance Table 6-4			40 CFR 141.62 (MCL)		
											0.005	0.75	0.700	0.620	0.014	0.04		0.04	0.0150	0.002	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	DO (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	Lead (mg/L)	Mercury (mg/L)	
	2nd Quarter 2008	Week of 05/12/08	3.43	NPP	8.84	702	1.32	54	6.87	56.8	0.048	<0.02	1.100	13.000	<0.05	*<1.00	46		0.0390	NR	
	1st Quarter 2008	Week of 03/10/08	3.15	NPP	8.84	656	2.34	216	6.82	47.4	<0.020	<0.020	1.600	17.000	<0.050	*<1.00	52		0.0510	NR	
	4th Quarter 2007	Week of 10/29/07	4.78	NPP	8.84	857	0.23	229	7.04	66.5	<0.001	<0.001	2.600	17.000	<0.0025	1.20	56		0.0320	NR	
	3rd Quarter 2007	Week of 08/20/07	6.97	NPP	8.84	911	0.17	129	6.88	69.8	0.300	<0.10	3.000	22.000	<0.25	*<1.00	69		0.0440	NR	
	2nd Quarter 2007	Week of 06/18/07	6.62	NPP	8.84	884	0.80	148	6.87	63.9	0.340	<0.10	3.500	21.000	<0.25	*<1.00	78		0.0920	NR	
	1st Quarter 2007	Week of 02/26/07	5.59	NPP	8.84	1027	0.79	219	6.87	49.6	<0.01	<0.01	1.300	18.000	<0.025	*<1.00	85		NR	NR	
	4th Quarter 2006	Week of 12/04/06	5.95	NPP	8.84	1377	1.36	229	6.99	56.0	0.069	<0.050	1.200	10.000	<0.120	*<1.00	50		NR	NR	
	3rd Quarter 2006	Week of 09/11/06	5.32	NPP	8.84	879	0.29	149	7.09	71.0	<0.01	<0.01	3.100	16.000	<0.025	*<1.00	110		NR	NR	
	2nd Quarter 2006	Week of 06/17/06	5.24	NPP	8.84	989	0.05	39	6.94	65.3	0.054	<0.001	1.600	16.000	<0.025	*<1.00	34		NR	NR	
	1st Quarter 2006	Week of 03/06/06	7.81	NPP	8.84	747	0.52	-51	7.03	54.1	0.200	<0.02	0.280	20.000	<0.05	*<1.00	59		NR	NR	
	Baseline	Week of 08/15/05	5.91	NPP	8.84	923	NR	NR	6.90	68.7	0.350	<0.005	3.500	21.000	<0.05	1.20	56		NR	NR	
TP-6	Low Flow 2017	Week of 04/26/17	5.71	NPP	9.94	999	2.45	-132	7.00	55.0	<0.001	<0.001	0.026	0.0038	<0.001	1.7	1.3	< 2.5	0.027	NR <sup>2</sup>	
	Low Flow 2016	Week of 04/28/16	5.75	NPP	9.94		780	1.48	-231	8.04	55.9	<0.001	<0.001	0.068	<0.0015	<0.0010	0.75	0.99	< 2.5	0.033	NR <sup>2</sup>
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	6.00	NPP	9.94	800	1.77	-185	7.73	55.8	<0.001	<0.001	0.0087	0.0048	<0.001	1.6	1.5	< 2.5	0.0150	NR <sup>2</sup>	
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.11	NPP	9.94	552	4.25	-83	7.11	53.5	<0.001	<0.001	0.028	0.093	<0.001	1.7	3.5	< 2.5	0.0084	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.79	NPP	9.94	457	6.84	-7	7.71	70.2	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0100	NR <sup>2</sup>	
TP-7 (Bi-Annual)	Low Flow 2017	Week of 04/26/17****	5.86	NPP	9.71	978	5.25	163	7.78	49.5	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.2	<0.05	<2.5	0.020	NR <sup>2</sup>	
	2016	04/27/16	5.83	NPP	9.72	Bi-Annual															
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	6.05	NPP	9.72	773	3.09	-62.4	7.76	54.8	<0.002	<0.002	<0.002	<0.003	<0.002	<0.20	<0.50	< 2.5	<0.005	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.59	NPP	9.72	704	5.67	-56	7.40	64.9	<0.010	<0.010	<0.010	<0.020	<0.010	<0.20	<0.50	< 2.5	0.0014	NR <sup>2</sup>	
TP-8	Low Flow 2017	Week of 04/26/17	5.66	NPP	9.72	1,571	2.80	-80	7.27	52.5	<0.005	<0.005	0.011	< 0.0075	<0.005	1.3	1.6	< 2.5	0.038	NR <sup>2</sup>	
	Low Flow 2016	Week of 04/28/16	5.65	NPP	9.72		1084	2.57	-163	8.03	54.0	<0.005	<0.005	0.029	0.026	<0.005	1.0	2.9	< 2.5	0.034	NR <sup>2</sup>
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	8.06	NPP	9.72	907	2.64	-93.6	7.76	54.0	<0.005	<0.005	0.0099	0.044	<0.005	1.3	1.4	< 2.5	0.0091	NR <sup>2</sup>	
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.22	NPP	9.72	957	2.33	-226	7.56	53.6	<0.005	<0.005	0.019	0.083	<0.005	2.3	4.0	< 2.5	0.0080	NR <sup>2</sup>	



TABLE 1  
2017 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	NMED Soil Screening Guidance	NMED Soil Screening Guidance Table 6-4			40 CFR 141.62 (MCL)	
											0.005	0.75	0.700	0.620	0.014	0.04		0.04	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	DO (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	Lead (mg/L)	Mercury (mg/L)
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	6.29	NPP	9.72	995	1.71	-179	7.40	68.0	<0.005	<0.005	0.014	0.091	<0.005	1.60	4.00	< 2.5	0.0110	NR <sup>2</sup>
TP-9	Low Flow 2017	Week of 04/26/17	5.81	NPP	10.97	1674	2.23	-83	7.33	50.9	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	0.11	< 2.5	0.017	NR <sup>2</sup>
	Low Flow 2016	Week of 04/28/16	5.69	NPP	10.97	1715	2.00	-123	7.19	52.6	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	0.092	< 2.5	0.052	NR <sup>2</sup>
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	5.93	NPP	10.97	1833	3.38	-104	7.35	51.9	<0.001	<0.001	<0.001	<0.0015	<0.001	0.35	<0.050	< 2.5	0.0056	NR <sup>2</sup>
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.98	NPP	10.97	1410	5.09	-54	7.05	50.8	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	<0.0050	NR <sup>2</sup>
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.23	NPP	10.97	1330	4.80	65	7.00	65.5	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0091	NR <sup>2</sup>
	2017	04/28/17	5.11	NPP	9.95	Groundwater Sampling Discontinued (NMED, 2015)														
TP-10	2016	04/27/16	5.12	NPP	9.95	Groundwater Sampling Discontinued (NMED, 2015)														
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	5.50	NPP	9.95	695	1.78	46.3	7.60	50.7	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	0.024	NR <sup>2</sup>
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	4.99	NPP	9.95	340	2.01	60	7.50	63.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0013	NR <sup>2</sup>
	2017	04/28/17	5.56	NPP	9.98	Groundwater Sampling Discontinued (NMED, 2015)														
TP-11	2016	04/27/16	5.58	NPP	9.98	Groundwater Sampling Discontinued (NMED, 2015)														
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	5.84	NPP	9.98	797	2.06	34.4	7.67	51.9	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	<0.0050	NR <sup>1</sup>
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.45	NPP	9.98	500	1.92	-28	7.40	62.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0130	NR <sup>1</sup>
	2017	04/28/17	7.32	NPP	11.79	Groundwater Sampling Discontinued (NMED, 2015)														
TP-12	2016	04/27/16	7.36	NPP	11.79	Groundwater Sampling Discontinued (NMED, 2015)														
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 07/11/15	7.57	NPP	11.79	1064	2.51	-33.9	7.55	51.0	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	<0.0050	NR <sup>2</sup>
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	7.10	NPP	11.79	561	2.61	-32	7.60	56.6	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0058	NR <sup>2</sup>
	2017	04/28/17	6.18	NPP	12.73	Groundwater Sampling Discontinued (NMED, 2015)														
TP-13 (Bi-Annual)	2016	04/27/16	6.25	NPP	16.09	Groundwater Sampling Discontinued (NMED, 2015)														
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	6.45	NPP	16.09	600	5.66	-15.7	7.83	50.5	<0.002	<0.002	<0.002	<0.003	<0.002	0.22	<0.050	< 2.5	0.0064	NR <sup>2</sup>
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	5.88	NPP	16.09	365	3.23	-54	7.50	60.7	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0068	NR <sup>2</sup>
	2017	04/28/17																		



## 2017 Groundwater Monitoring Data Summary

Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	DO (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	Lead (mg/L)	Mercury (mg/L)	
DW-1 (Bi-Annual)	Low Flow 2017	Week of 04/26/17****	6.16	NPP	15.62	981	2.79	144	7.91	55.4	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 25	0.0068	NR <sup>2</sup>	
	2016	04/27/16	6.15	NPP	15.62	Bi-Annual															
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	
	Low Flow 2015	Week of 04/28/15	6.30	NPP	15.62	2053	2.13	-114	7.26	53.5	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 25	****	<0.0002	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	
	Low Flow 2013	Week of 07/11/13	9.64	NPP	15.62	1936	2.43	-93	7.00	68.8	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0014	<0.0002	
DW-2	Special Event	12/29/2017	NM	NM	NM	1426	2.22	-29	7.79	60.2	<0.001	<0.001	0.0036	0.0039	<0.001	0.4	1	< 2.5	0.0041	NR	
DW-3	Special Event	12/29/2017	NM	NM	NM	1654	0.68	41	7.78	70.1	<0.001	<0.001	0.0040	0.0020	<0.001	<0.2	0.23	< 2.5	0.00083	NR	
	Low Flow 2017	Week of 04/26/17	7.61	NPP	14.64	1975	1.45	-162	7.26	70.9	<0.001	<0.001	0.0032	<0.0015	<0.001	<0.20	0.099	< 2.5	0.0110	NR <sup>2</sup>	
	Low Flow 2016	Week of 04/28/16	7.59	NPP	14.64	1448	2.59	-269	7.60	52.6	0.0049	<0.001	0.034	0.011	<0.001	0.35	0.33	< 2.5	0.014	NR <sup>2</sup>	
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	
	Low Flow 2015	Week of 04/28/15	11.23	NPP	14.64	1507	6.74	-243	7.58	57.4	0.082	<0.010	0.400	0.290	<0.010	0.76	2.1	<2.5	<0.0050	NR <sup>2</sup>	
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	6.92	NPP	14.64	1048	0.68	-266	7.36	54.6	0.067	<0.010	0.720	1.300	<0.010	1.7	8.8	<2.5	<0.0050	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	10.86	NPP	14.64	945	1.15	-265	7.55	67.1	0.098	<0.010	1.700	4.100	<0.010	3.30	23	< 2.5	0.0055	NR <sup>2</sup>	
MW-49	Low Flow 2017	Week of 04/26/17	9.65	NPP	16.48	1202.00	3.73	-85	7.18	52.3	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	0.029	NR <sup>2</sup>	
	Low Flow 2016	Week of 04/28/16	9.31	NPP	16.48	942.00	3.63	-125.13	7.95	51.7	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	0.040	NR <sup>2</sup>	
	High Flow 2015	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2015	Week of 04/28/15	9.65	NPP	16.48	936.00	1.94	-140.80	7.65	52.90	<0.001	<0.001	<0.001	<0.0015	<0.001	<0.20	<0.050	< 2.5	<0.0050	NR <sup>2</sup>	
	High Flow 2014 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2014	Week of 04/22/14	10.08	NPP	16.48	1255	4.84	-111.2	7.45	51.08	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0064	NR <sup>2</sup>	
	High Flow 2013 **	No High Flow	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
	Low Flow 2013	Week of 07/11/13	9.17	NPP	16.48	749	1.67	-105	7.35	63.4	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	<0.050	< 2.5	0.0013	NR <sup>2</sup>	
Gallery	Special Event	12/29/2017	NM	NM	NM	1552	1.85	-75	6.91	51.2	<0.001	<0.001	<0.001	<0.002	<0.001	<0.20	0.11	< 2.5	0.11	NR	

**Notes:** NR = Not Required (Voluntary Corrective Measures - Revised Monitoring Plan - October 2005)  
NR<sup>1</sup> = Not Required (Approval With Direction - June 2009)  
NR<sup>2</sup> = Not Required (Approval With Direction - May 2011)  
NS = Not Sampled NM = Not measured  
NPP = No Product Present  
DO = Dissolved Oxygen  
ORP = Oxidation Reduction Potential  
\*\* Due to drought, river conditions never met high flow requirements.  
\*\*\* Well Decommissioned November 2012 as part of biovent system enhancements.  
\*\*\*\* Water level measured 4/26/2017, sample for chemical analysis collected 12/29/2017  
(Bi-Annual) = Samples taken every other year starting in 2011.



TABLE 1  
2017 Groundwater Monitoring Data Summary

											MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	NMED Soil Screening Guidance	NMED Soil Screening Guidance Table 6-4			40 CFR 141.62 (MCL)	
											0.005	0.75	0.700	0.620	0.014	0.04		0.04	0.0150	0.002
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	Conductivity (umhos/cm)	DO (mg/L)	ORP (mV)	pH	TEMP (°F)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	MTBE (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	Lead (mg/L)	Mercury (mg/L)

	Per NMED letter "Approval with Modifications Facility-Wide Groundwater Monitoring plan - June 2014" dated June 15, 2015, groundwater sampling discontinued.
1. Per NMED letter "Approval with Modifications Facility-Wide Groundwater Monitoring plan - June 2014" dated June 15, 2015, high flow sampling is no longer required at the River Terrace.	
0.670	Constituent detected at concentration above method detection limit
3.100	Constituent detected at concentration above screening level



**TABLE 2**  
**GAC FILTER MONITORING 2017**



**Table 2**  
**2017 River Terrace Annual Report GAC Filter Monitoring**

Sample Location	Sampling Event	Date	MCL	WQCC 20NMAC 6.2.3103	MCL	WQCC 20NMAC 6.2.3103	NMED Soil Screening Guidance Table 6-4			NMED Soil Screening Guidance
			Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	TPH-DRO (mg/L)	TPH-GRO (mg/L)	TPH-MRO (mg/L)	MTBE (mg/L)
			0.005	0.750	0.700	0.620	0.04		0.04	0.014
GAC-INLET	4th Quarter	12/15/17	<0.001	<0.001	0.0013	0.0016	0.31	0.78	<2.5	<0.001
		11/22/17	<0.001	<0.001	<0.001	<0.0015	0.26	0.37	<2.5	<0.001
		10/31/17	<0.001	<0.001	0.0015	<0.0015	0.30	0.37	<2.5	<0.001
	3rd Quarter	09/20/17	<0.001	0.000092J	0.0019	0.0025	0.21	0.53	<2.5	<0.001
		08/02/17	<0.001	<0.001	0.042	0.024	0.59	1.7	<2.5	<0.001
		07/12/17	<0.001	<0.001	0.020	0.026	0.89	1.8	<2.5	<0.001
	2nd Quarter	06/14/17	<0.001	<0.001	0.003	0.014	0.32	0.57	<2.5	<0.001
		05/24/17	<0.001	<0.001	0.001	0.035	<0.20	0.55	<2.5	<0.001
		04/12/17	<0.001	<0.001	0.160	0.720	0.64	3.90	<2.5	<0.001
	1st Quarter	03/08/17	<0.001	<0.001	0.080	0.230	0.67	2.6	<2.5	<0.001
		02/15/17	<0.005	<0.005	0.180	0.700	1.10	3.90	<2.5	<0.005
		01/04/17	<0.001	<0.001	0.170	0.680	0.84	2.8	<2.5	<0.001
GAC-LEAD	4th Quarter	12/15/17	<0.001	<0.001	<0.001	<0.0015	<0.20	0.000034J	<2.5	0.00032J
		01/22/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
		10/31/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
	3rd Quarter	09/20/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	0.00054J
		08/02/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
		07/12/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
	2nd Quarter	06/14/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
		05/24/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
		04/12/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
	1st Quarter	03/08/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	0.0011
		02/15/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
		01/04/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
GAC-LAG	4th Quarter	12/13/17	<0.001	<0.001	<0.001	<0.0015	<0.20	0.026J	<2.5	<0.001
	3rd Quarter	09/20/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
	2nd Quarter	06/14/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001
	1st Quarter	03/08/17	<0.001	<0.001	<0.001	<0.0015	<0.20	<0.050	<2.5	<0.001

**Notes:**

	= Analytical result exceeds the respective screening level.
---	= Not analyzed

MTBE = Methyl tert-butyl ether

MCL = Maximum Contaminant Level

TPH-DRO = Total Petroleum Hydrocarbons - Diesel Range Organics Commission

TPH-GRO = Total Petroleum Hydrocarbons - Gasoline Range Organics

TPH-MRO = Total Petroleum Hydrocarbons - Motor Oil Range Organics

J = estimated concentration reported below quantitation limit

WQCC = Water Quality Control Commission



**TABLE 3**  
**AIR PRESSURE READINGS**



**Table 3**  
**2016 and 2017 Biovent Wells Field Readings Summary**

<b>Sample Location</b>	<b>Sampling Event</b>	<b>Sample Date</b>	<b>Pressure (psi)</b>
BV - 1	Low Flow	4/26/2017	2.0
BV - 3	Low Flow	4/26/2017	2.0
BV - 4	Low Flow	4/26/2017	1.9
BV - 5	Low Flow	4/26/2017	1.5
BV - 6	Low Flow	4/26/2017	1.9
Air Sparging Line A	Low Flow	4/26/2017	2.0
Air Sparging Line B	Low Flow	4/26/2017	1.7
Main Blower	Low Flow	4/26/2017	2.8

<b>Sample Location</b>	<b>Sampling Event</b>	<b>Sample Date</b>	<b>Pressure (psi)</b>
BV - 1	Low Flow	5/2/2016	2.0
BV - 3	Low Flow	5/2/2016	2.0
BV - 4	Low Flow	5/2/2016	2
BV - 5	Low Flow	5/2/2016	2
BV - 6	Low Flow	5/2/2016	2
Air Sparging Line A	Low Flow	5/2/2016	2.0
Air Sparging Line B	Low Flow	5/2/2016	2
Main Blower	Low Flow	5/2/2016	2.7



# Appendix A



# Field Methods

## Groundwater Sampling

### *Groundwater Elevation*

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. The technician records separate phase hydrocarbon, depth to water, and total well depth using this probe.

### *Water Quality/Groundwater Sampling*

Water quality parameters are measured using an YSI Professional Plus instrument. Electrical conductance, oxidation-reduction potential (ORP), pH, temperature, and dissolved oxygen are monitored during purging.

### *Well Purging Technique*

At least three well volumes are purged from the well. Purge volumes are determined using the following equation:

$$(\text{Well depth}) - (\text{Casing height}) - (\text{Depth to Liquid}) \times (\text{Conversion Factor}) \times 3$$

The conversion factor is determined by the diameter of the well casing.

<u>Casing</u>	<u>Conversion Factor</u>
6"	1.50 gal/ft
5"	1.02 gal/ft
4"	0.74 gal/ft
3"	0.367 gal/ft
2"	0.163 gal/ft

### *Well Sampling and Sample Handling Procedure*

Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Probe
- YSI Professional Plus
- Distilled Water
- Disposable Nitrile Gloves
- Disposable Bailers



- String/Twine
- Cooler with Ice
- Bottle kits with Preservatives (provided by the contract laboratory)
- Sharpie Permanent Marker
- Field Paperwork/Log sheet
- Two 5-gallon buckets
- Trash container (plastic garbage bag)
- Ziploc Bags
- Paper towels

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed. All purged water is poured into a 55-gallon drum designated for sampling events.

After sufficient purging, samples are collected with the bailer and poured into the appropriate sample containers. Two people are usually utilized for sampling. Sampling takes place over a bucket to insure that spills are contained

Samples are labeled immediately with location, date, time, analysis, preservative, and sampler. Then they are put in a Ziploc bag and placed in a cooler holding sufficient ice to keep them cool. The field log sheet is reviewed to verify all entries.

### ***Purge and Decontamination Water Disposal***

The YSI Professional Plus and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained. All rinse and purge water is contained and then disposed of through the refinery wastewater system.

### ***Instrument Calibration***

Calibration of the YSI Professional Plus occurs at the beginning of each day of sampling. The probe is powered on and allowed to stabilize, which usually takes 15 minutes. The calibration menu is selected. The LCD screen runs through a list of selections to specify units, calibration solutions, etc. The calibrations procedures outlined in the YSI Professional Plus instruction manual are followed.



## Appendix B





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A84

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A84**

Date Reported: **5/3/2017**

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

**Client Sample ID:** DW-3

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 1:30:00 PM

**Lab ID:** 1704A84-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 5:31:31 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 5:31:31 PM
Surr: DNOP	118	86-162		%Rec	1	5/2/2017 5:31:31 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.099	0.050		mg/L	1	4/26/2017 3:20:08 PM
Surr: BFB	140	52.3-138	S	%Rec	1	4/26/2017 3:20:08 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.011	0.0050		mg/L	1	4/27/2017 11:43:40 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Ethylbenzene	3.2	1.0		µg/L	1	4/25/2017 3:33:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 3:33:00 PM
Surr: 1,2-Dichloroethane-d4	84.9	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: Dibromofluoromethane	97.2	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	4/25/2017 3:33:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A84**

Date Reported: **5/3/2017**

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

**Client Sample ID:** Trip Blank

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:**

**Lab ID:** 1704A84-002

**Matrix:** TRIP BLANK

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 3:56:00 PM
Surr: 1,2-Dichloroethane-d4	84.5	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: Dibromofluoromethane	97.3	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/25/2017 3:56:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332724</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332725</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

Sample ID <b>1704A84-001BMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>DW-3</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332727</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0.09920	94.1	64.8	129			
Surr: BFB	32		20.00		160	52.3	138			S

Sample ID <b>1704A84-001BMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>DW-3</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332728</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0.09920	92.9	64.8	129	1.06	20	
Surr: BFB	31		20.00		154	52.3	138	0	0	S

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333245		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	98.7	80	120			

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A84

RcptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 7:55:47 AM

Reviewed By:

ENM *[Signature]*

4/25/17

*[Signature]*

*[Signature]*

### 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? Cooler

### 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: 1  
( $<2$  or  $>12$  unless noted)  
Adjusted? 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: <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	
Client Instructions:	

17. Additional remarks:

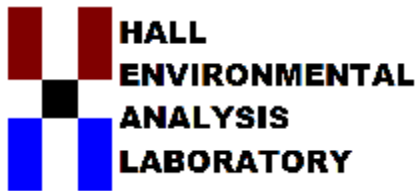
### 18. Cooler Information

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









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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A85

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A85**Date Reported: **5/3/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** TP-6**Project:** River Terrace Low Flow 4 24 2017**Collection Date:** 4/24/2017 12:55:00 PM**Lab ID:** 1704A85-001**Matrix:** AQUEOUS**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.7	0.20		mg/L	1	5/2/2017 5:53:56 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 5:53:56 PM
Surr: DNOP	125	86-162		%Rec	1	5/2/2017 5:53:56 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.3	0.050		mg/L	1	4/26/2017 4:32:30 PM
Surr: BFB	725	52.3-138	S	%Rec	1	4/26/2017 4:32:30 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.027	0.0050		mg/L	1	4/27/2017 11:45:13 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Ethylbenzene	26	1.0		µg/L	1	4/25/2017 4:20:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Xylenes, Total	3.8	1.5		µg/L	1	4/25/2017 4:20:00 PM
Surr: 1,2-Dichloroethane-d4	81.0	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/25/2017 4:20:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	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#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333245		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	98.7	80	120			

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A85

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

*Lindsay Mangin*

Completed By: Lindsay Mangin

4/25/2017 8:02:31 AM

*Lindsay Mangin*

Reviewed By:

ENM/ *AA*

*04/25/17*

### 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: 1  
(≤2 or >12 unless noted)  
Adjusted? 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:

### 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**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

**4-24-2017**

Project #:

**PO# 12618990**

Project Manager:

Kelly Robinson

Sampler: **Michael A Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **2-1**

Date Time Matrix Sample Request ID

**4-24-17 1255**

**H<sub>2</sub>O**

**TP-6**

Container Type and #

**5-VOA**

Preservative Type

**HCl**

HBAL No.

**1708A85**

**-001**

**-001**

**-001**

**1-250 mL Amber**

**1-500 mL**

**HNO<sub>3</sub>**

Date Time

**4-24-17 1540**

Relinquished by:

**Michael A Wicker**

Received by:

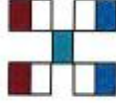
**Michael A Wicker**

Date Time

**4/24/17 1540**

Remarks:

**4/25/17 0715**



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

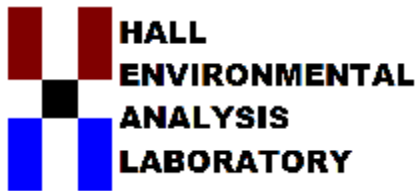
4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

BTEX + MTBE + TMBs (8021)	
BTEX + MTBE + TPH (Gas only)	
TPH 8015B (GRO / DRO / MRO)	X
TPH (Method 418.1)	
EDB (Method 504.1)	
PAH (8310 or 8270SIMS)	
RCRA 8 Metals	
Anions (F <sup>-</sup> , Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>3-</sup> , SO <sub>4</sub> <sup>2-</sup> )	
8081 Pesticides / 8082 PCB's	
8260B (VOA) BTEX, MTBE Only	X
8270 (Semi-VOA)	
DRO - Ext. 8015B	X
Total Metals Pb only	
Air Bubbles (Y or N)	





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A86

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A86**Date Reported: **5/3/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-49**Project:** River Terrace Low Flow 4 24 2017**Collection Date:** 4/24/2017 12:20:00 PM**Lab ID:** 1704A86-001**Matrix:** AQUEOUS**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 6:16:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 6:16:23 PM
Surr: DNOP	124	86-162		%Rec	1	5/2/2017 6:16:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2017 5:20:26 PM
Surr: BFB	98.8	52.3-138		%Rec	1	4/26/2017 5:20:26 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.029	0.0050		mg/L	1	4/27/2017 11:59:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 4:44:00 PM
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/25/2017 4:44:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	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#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333379</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333380</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333245		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	98.7	80	120			

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A86

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

*[Signature]*

Completed By: Lindsay Mangin

4/25/2017 8:06:26 AM

*[Signature]*

Reviewed By:

ENM/ *[Signature]*

04/25/17

### 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 8.0°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: 1  
(2 or >12 unless noted)  
Adjusted? 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:

### 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**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

**4-24-2017**

Project #:

**PO# 12618990**

Project Manager:

Kelly Robinson

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: **21.1**

Date Time Matrix Sample Request ID

4/24/17 1220 H<sub>2</sub>O MW-49

↓ ↓ ↓

Container Type and #

5-VOA

1-250 mL Amber

1-500 mL

Preservative Type

HCl

Cool

HNO<sub>3</sub>

HEAL No.

**170486**

**-001**

**-001**

**-001**

## Analysis Request

BTEX + MTBE + TMBs (6021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F<sup>-</sup>, Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>)

8081 Pesticides / 8082 PCBs

8260B (VOA) BTEX, MTBE Only

8270 (Semi-VOA)

DRO - Ext. 8015B

Total Metals Pb only

Air Bubbles (Y or N)

Remarks:

Received by: **Chet Wacker** Date: **4/24/17** Time: **1524**

Received by: **Chet Wacker** Date: **4/25/17** Time: **0715**

Date: **4/24/17** Time: **1524**

Date: **4/24/17** Time: **1833**





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A87

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704A87

Date Reported: 5/3/2017

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

**Client Sample ID:** TP-5

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 11:40:00 AM

**Lab ID:** 1704A87-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.6	0.20		mg/L	1	5/2/2017 6:38:40 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 6:38:40 PM
Surr: DNOP	137	86-162		%Rec	1	5/2/2017 6:38:40 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	4/26/2017 5:44:31 PM
Surr: BFB	146	52.3-138	S	%Rec	20	4/26/2017 5:44:31 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.068	0.0050		mg/L	1	4/27/2017 12:00:43 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Toluene	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Ethylbenzene	670	10		µg/L	10	4/25/2017 5:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Xylenes, Total	3100	150		µg/L	100	4/26/2017 1:50:00 PM
Surr: 1,2-Dichloroethane-d4	81.1	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: Toluene-d8	104	70-130		%Rec	10	4/25/2017 5:07:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	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#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333379</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333380</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42398</b>			RunNo: <b>42398</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1335998</b>			Units: <b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42398</b>			RunNo: <b>42398</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1335999</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42398	RunNo:	42398					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1335999	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	10		10.00		104	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType: LCSD		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSS02		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333246		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20	

### Qualifiers:

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





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-245-3975 FAX: 505-245-4197  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A87

ReptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 8:08:22 AM

Reviewed By:

ENM/

04/25/17

*[Signature]*

*[Signature]*

### Chain of Custody

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

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:  
Adjusted? 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:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			



[illegible]

<b>Turn-Around Time:</b>					
<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush					
<b>Project Name:</b> River Terrace- Low Flow					
4 - 24 - 2017					
<b>Project #:</b>					
<b>PO# 12618990</b>					
<b>Project Manager:</b>					
Kelly Robinson					
<b>Sampler:</b> Michael A Wicker					
<b>On Ice:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
<b>Sample Temperature:</b> 7.1					
Container Type and #	Preservative Type	HEAL No.			
5-VOA	HCl	-001	1702-AST		
1-250 mL Amber	Cool	-001			
1-500 mL	HNO <sub>3</sub>	-001			
<b>Received by:</b>		<b>Date</b>	<b>Time</b>		
Charles		4/24/17	1546		
<b>Received by:</b>		<b>Date</b>	<b>Time</b>		
[Signature]		April 25, 2017	0715		

<b>Chain-of-Custody Record</b>			
Client: <b>Western Refining</b>			
Mailing Address: <b>50 CR 4990</b>			
<b>Bloomfield, NM 87413</b>			
Phone #: <b>505-632-4135</b>			
email or Fax#:			
QA/QC Package:			
<input type="checkbox"/> Standard <input checked="" type="checkbox"/> Level 4 (Full Validation)			
<input type="checkbox"/> Other _____			
<input checked="" type="checkbox"/> EDD (Type) _____			
Date	Time	Matrix	Sample Request ID
4-24-17	1140	H <sub>2</sub> O	TP-5
↓	↓	↓	↓
Date:	Time:	Relinquished by:	
4-24-17	1546		
Date:	Time:	Relinquished by:	
4-24-17	1833		

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**

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks:

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-24-17	1540	[Signature]	Chavez	4/24/17	1540
6-24-17	1833	Wt-Wceto	[Signature]	6/24/17	0715





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A88

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A88**Date Reported: **5/3/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** TP-8**Project:** River Terrace Low Flow 4 24 2017**Collection Date:** 4/24/2017 11:00:00 AM**Lab ID:** 1704A88-001**Matrix:** AQUEOUS**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.3	0.20		mg/L	1	5/2/2017 7:01:19 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 7:01:19 PM
Surr: DNOP	131	86-162		%Rec	1	5/2/2017 7:01:19 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.6	0.25		mg/L	5	4/26/2017 6:08:41 PM
Surr: BFB	179	52.3-138	S	%Rec	5	4/26/2017 6:08:41 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.038	0.0050		mg/L	1	4/27/2017 12:02:15 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Toluene	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Ethylbenzene	11	5.0		µg/L	5	4/25/2017 5:31:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Xylenes, Total	ND	7.5		µg/L	5	4/25/2017 5:31:00 PM
Surr: 1,2-Dichloroethane-d4	84.0	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: Dibromofluoromethane	97.8	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: Toluene-d8	103	70-130		%Rec	5	4/25/2017 5:31:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A88

03-May-17

Client: Western Refining Southwest, Inc.

Project: River Terrace Low Flow 4 24 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G42379	RunNo:	42379					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1332724	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G42379	RunNo:	42379					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1332725	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A88

RcptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 8:10:40 AM

Reviewed By:

ENM/

04/25/17

*[Signature]*

*[Signature]*

### Chain of Custody

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

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:

1  
( $<2$  or  $>12$  unless noted)

Adjusted?

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:

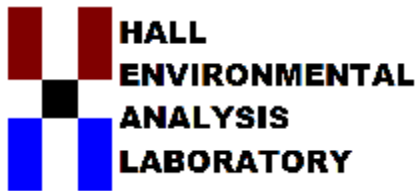
### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			









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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A89**

Date Reported: **5/3/2017**

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

**Client Sample ID:** TP-9

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 10:25:00 AM

**Lab ID:** 1704A89-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 7:23:41 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 7:23:41 PM
Surr: DNOP	123	86-162		%Rec	1	5/2/2017 7:23:41 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	4/26/2017 6:32:52 PM
Surr: BFB	133	52.3-138		%Rec	1	4/26/2017 6:32:52 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.017	0.0050		mg/L	1	4/27/2017 12:03:51 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 5:54:00 PM
Surr: 1,2-Dichloroethane-d4	81.6	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	4/25/2017 5:54:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>MB-31497</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>31497</b>		RunNo: <b>42482</b>							
Prep Date: <b>5/1/2017</b>	Analysis Date: <b>5/2/2017</b>		SeqNo: <b>1336124</b>		Units: <b>mg/L</b>					
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	0.61		0.5000		122	86	162			

Sample ID <b>LCS-31497</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>31497</b>		RunNo: <b>42482</b>							
Prep Date: <b>5/1/2017</b>	Analysis Date: <b>5/2/2017</b>		SeqNo: <b>1336222</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

Client: Western Refining Southwest, Inc.

Project: River Terrace Low Flow 4 24 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G42379	RunNo:	42379					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1332724	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G42379	RunNo:	42379					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1332725	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333379</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333380</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A89

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin

4/25/2017 8:13:23 AM

Reviewed By:

ENM/ *[Signature]*

04/25/17

*[Signature]*

*[Signature]*

### 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 04/25/17**
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:

**1**  
(2 or >12 unless noted)

Adjusted?

**YES**

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: **Added 1mL HNO<sub>3</sub> to -001D for acceptable pH. Held for 24hrs. prior to analysis. -ENM 04/25/17 0900**

### 18. Cooler Information

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









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

January 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 1-4-2017

OrderNo.: 1701161

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:10:00 PM

**Lab ID:** 1701161-001

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	1/11/2017 12:25:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 12:25:23 PM
Surr: DNOP	126	67.9-149		%Rec	1	1/11/2017 12:25:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/10/2017 11:22:10 AM
Surr: BFB	79.7	66.4-120		%Rec	1	1/10/2017 11:22:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Ethylbenzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Xylenes, Total	ND	1.5		µg/L	1	1/9/2017 1:30:08 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: 4-Bromofluorobenzene	84.1	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Toluene-d8	90.8	70-130		%Rec	1	1/9/2017 1:30:08 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:20:00 PM

**Lab ID:** 1701161-002

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	0.84	0.20		mg/L	1	1/11/2017 1:30:12 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 1:30:12 PM
Surr: DNOP	130	67.9-149		%Rec	1	1/11/2017 1:30:12 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	2.8	0.50		mg/L	10	1/10/2017 11:46:41 AM
Surr: BFB	103	66.4-120		%Rec	10	1/10/2017 11:46:41 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: DJF
Benzene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Ethylbenzene	170	10		µg/L	10	1/9/2017 9:17:10 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Xylenes, Total	680	15		µg/L	10	1/9/2017 9:17:10 PM
Surr: 1,2-Dichloroethane-d4	75.1	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Dibromofluoromethane	79.7	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Toluene-d8	93.9	70-130		%Rec	1	1/9/2017 1:59:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	MB-29629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252027		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	0.62		0.5000		123	67.9	149			

Sample ID	1701161-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252070		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	115	75.4	162			
Surr: DNOP	0.28		0.2500		112	67.9	149			

Sample ID	LCS-29629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252071		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	72	170			
Surr: DNOP	0.28		0.2500		111	67.9	149			

Sample ID	1701161-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Lead		Batch ID:	29629		RunNo:	39953				
Prep Date:	1/11/2017		Analysis Date:	1/11/2017		SeqNo:	1252199		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.07	20		
Surr: DNOP	0.28		0.2500		112	67.9	149	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251625	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	15		20.00		76.6	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	79.1	123			
Surr: BFB	18		20.00		89.0	66.4	120			

Sample ID	1701161-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251632	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.6	0.50	5.000	2.830	94.8	64.8	129			
Surr: BFB	210		200.0		105	66.4	120			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250952	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130			
Surr: Toluene-d8	8.9		10.00		88.9	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1701161

RcptNo: 1

Received by/date:

*R-m*

*01/05/17*

Logged By: Ashley Gallegos

1/5/2017 7:25:00 AM

*Ag*

Completed By: Ashley Gallegos

1/5/2017 12:25:32 PM

*Ag*

Reviewed By:

*[Signature]*

*01/05/17*

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

# of preserved  
bottles checked  
for pH:  
( $<2$  or  $>12$  unless noted)  
Adjusted?  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			



<b>Chain-of-Custody Record</b>		Turn-Around Time:
Client: <b>Western Refining</b>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush
		Project Name: <b>GAC - Lead</b>
Mailing Address: <b>#50 CR 4990</b>		Date: <u>1-4-2017</u>
<b>Bloomfield, NM 87413</b>		Project #:
Phone #: <b>505-632-4135</b>		PO#12615519
email or Fax#:		Project Manager:
QA/QC Package:		
<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Level 4 (Full Validation)	
<input type="checkbox"/> Other _____		
<input checked="" type="checkbox"/> EDD (Type) _____		
		Sampler: <u>Michael A Wicker</u>
		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Sample Temperature: <u>2.2</u>

☒ Standard      ☐ Rush

Date: 1 - 4 - 2017

Project #:

PO#12615519





**Project Manager:**

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 72

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-4-17	1530			1/4/17	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time
1/4/17	1830			1/5/17	0725

Remarks:

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





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

February 27, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 2-15-2017

OrderNo.: 1702729

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/16/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:20:00 AM

**Lab ID:** 1702729-001

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	2/21/2017 2:43:43 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 2:43:43 PM	30313
Surr: DNOP	129	86-162		%Rec	1	2/21/2017 2:43:43 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2017 12:15:40 PM	G40920
Surr: BFB	87.1	52.3-138		%Rec	1	2/22/2017 12:15:40 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Toluene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Ethylbenzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Xylenes, Total	ND	1.5		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Dibromofluoromethane	109	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Toluene-d8	99.0	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:30:00 AM

**Lab ID:** 1702729-002

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	2/21/2017 4:09:02 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 4:09:02 PM	30313
Surr: DNOP	114	86-162		%Rec	1	2/21/2017 4:09:02 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.50		mg/L	10	2/22/2017 12:39:07 PM	G40920
Surr: BFB	109	52.3-138		%Rec	10	2/22/2017 12:39:07 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Toluene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Ethylbenzene	180	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Xylenes, Total	700	7.5	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	96.4	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: 4-Bromofluorobenzene	107	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Dibromofluoromethane	104	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Toluene-d8	102	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	LCS-30313		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280625		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	137	72	170			
Surr: DNOP	0.30		0.2500		121	86	162			

Sample ID	MB-30313		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280626		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	0.55		0.5000		110	86	162			

Sample ID	1702729-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280821		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	133	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1702729-001CMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC Lead		Batch ID:	30313		RunNo:	40870				
Prep Date:	2/21/2017		Analysis Date:	2/21/2017		SeqNo:	1280822		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	130	75.4	162	2.28	20		
Surr: DNOP	0.29		0.2500		115	86	162	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281743	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	17		20.00		86.8	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281744	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	79.1	123			
Surr: BFB	19		20.00		94.5	52.3	138			

Sample ID	1702729-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281750	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.9	0.50	5.000	3.902	100	64.8	129			
Surr: BFB	230		200.0		117	52.3	138			

Sample ID	1702729-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281751	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.2	0.50	5.000	3.902	85.2	64.8	129	8.90	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279940	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	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279941	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1702729

RcptNo: 1

Received by/date: AT 02/16/17

Logged By: Anne Thorne 2/16/2017 7:10:00 AM

Completed By: Anne Thorne 2/16/2017 9:41:17 AM

Reviewed By: mg 02/17/17

*Anne Thorne*  
*Anne Thorne*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			









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

March 15, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 3-8-2017

OrderNo.: 1703440

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/9/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lead

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:30:00 AM

**Lab ID:** 1703440-001

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 1:09:38 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 1:09:38 PM
Surr: DNOP	110	86-162		%Rec	1	3/13/2017 1:09:38 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 4:11:42 PM
Surr: BFB	87.1	52.3-138		%Rec	1	3/9/2017 4:11:42 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	3/9/2017 2:23:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 2:23:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Toluene-d8	96.4	70-130		%Rec	1	3/9/2017 2:23:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:35:00 AM

**Lab ID:** 1703440-002

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	0.67	0.20		mg/L	1	3/13/2017 2:33:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 2:33:50 PM
Surr: DNOP	105	86-162		%Rec	1	3/13/2017 2:33:50 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2.6	0.50		mg/L	10	3/9/2017 4:35:02 PM
Surr: BFB	108	52.3-138		%Rec	10	3/9/2017 4:35:02 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Ethylbenzene	80	1.0		µg/L	1	3/9/2017 2:47:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Xylenes, Total	230	15		µg/L	10	3/10/2017 11:25:00 AM
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/9/2017 2:47:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lag

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:25:00 AM

**Lab ID:** 1703440-003

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 3:02:45 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 3:02:45 PM
Surr: DNOP	94.5	86-162		%Rec	1	3/13/2017 3:02:45 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 6:08:16 PM
Surr: BFB	87.4	52.3-138		%Rec	1	3/9/2017 6:08:16 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 3:10:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	3/9/2017 3:10:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	MB-30629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1294967		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	0.48		0.5000		95.8	86	162			

Sample ID	LCS-30629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295010		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	95.8	72	170			
Surr: DNOP	0.23		0.2500		90.4	86	162			

Sample ID	1703440-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295012		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		110	86	162			

Sample ID	1703440-001CMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	GAC-Lead			Batch ID:	30629		RunNo:	41321			
Prep Date:	3/10/2017			Analysis Date:	3/13/2017		SeqNo:	1295043		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	3.23	20		
Surr: DNOP	0.26		0.2500		105	86	162	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293384	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	17		20.00		87.2	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293385	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	79.1	123			
Surr: BFB	19		20.00		94.4	52.3	138			

Sample ID	1703440-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.3	0.50	5.000	2.586	93.8	64.8	129			
Surr: BFB	230		200.0		115	52.3	138			

Sample ID	1703440-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293389	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.0	0.50	5.000	2.586	88.0	64.8	129	4.09	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294312	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Ethylbenzene	20	1.0	20.00	0	100	70	130			
Methyl tert-butyl ether (MTBE)	39	1.0	40.00	0	96.8	70	130			
Xylenes, Total	60	1.5	60.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294316	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294831	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1703440

RcptNo: 1

Received by/date:	AT	03/09/17
Logged By:	Lindsay Mangin	3/9/2017 7:10:00 AM
Completed By:	Lindsay Mangin	3/9/2017 8:30:10 AM
Reviewed By:	WS	03/09/17

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

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

## Special Handling (if applicable)

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

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



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

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 3-8-2017

Project #:

PO#12618990

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0

[illegible]

Date:	Time:	Relinquished by:
-------	-------	------------------

3-8-17 1545

Date:	Time:	Relinquished by:
-------	-------	------------------

3817 1952

Received by:	Date	Time
--------------	------	------

(Motive) White 3/8/17 1545

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

03/09/17



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Remarks:





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

April 19, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 4 12 2017

OrderNo.: 1704550

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/13/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704550**

Date Reported: **4/19/2017**

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

**Client Sample ID:** GAC Lead

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:45:00 AM

**Lab ID:** 1704550-001

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/18/2017 1:07:14 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 1:07:14 AM
Surr: DNOP	100	86-162		%Rec	1	4/18/2017 1:07:14 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/17/2017 6:15:37 PM
Surr: BFB	94.3	52.3-138		%Rec	1	4/17/2017 6:15:37 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2017 5:43:00 PM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/14/2017 5:43:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

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

**Client Sample ID:** GAC Inlet

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:50:00 AM

**Lab ID:** 1704550-002

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.64	0.20		mg/L	1	4/18/2017 2:31:30 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 2:31:30 AM
Surr: DNOP	105	86-162		%Rec	1	4/18/2017 2:31:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.25		mg/L	5	4/17/2017 6:39:00 PM
Surr: BFB	137	52.3-138		%Rec	5	4/17/2017 6:39:00 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Ethylbenzene	160	10		µg/L	10	4/14/2017 6:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Xylenes, Total	720	15		µg/L	10	4/14/2017 6:07:00 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/14/2017 6:31:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	1704550-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324843		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	75.4	162			
Surr: DNOP	0.26		0.2500		104	86	162			

Sample ID	1704550-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID:	31252	RunNo:	42147					
Prep Date:	4/14/2017	Analysis Date:	4/18/2017	SeqNo:	1324844	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	75.4	162	3.18	20	
Surr: DNOP	0.26		0.2500		102	86	162	0	0	

Sample ID	LCS-31252	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324846		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	98.4	72	170			
Surr: DNOP	0.25		0.2500		98.2	86	162			

Sample ID	MB-31252	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324847		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	0.49		0.5000		98.4	86	162			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID <b>B30</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324697</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		93.3	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324698</b>		Units: <b>mg/L</b>					
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	20		20.00		101	52.3	138			

Sample ID <b>1704550-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324701</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.2	0.25	2.500	3.938	88.8	64.8	129			
Surr: BFB	140		100.0		145	52.3	138			S

Sample ID <b>1704550-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324702</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.0	0.25	2.500	3.938	82.2	64.8	129	2.75	20	
Surr: BFB	140		100.0		143	52.3	138	0	0	S

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324421	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.9		10.00		89.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324422	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw



Work Order Number: 1704550

RcptNo: 1

Received By: Anne Thorne 4/13/2017 7:52:00 AM

Completed By: Ashley Gallegos 4/13/2017 8:46:41 AM

Reviewed By: Sze 04/13/17

## 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 ☐
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:

(&lt;2 or &gt;12 unless noted)

Adjusted?

Checked by:

## Special Handling (if applicable)

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

Person Notified:

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			



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 4-12-2017

Project #:

PO#12618990



Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

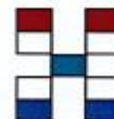
On Ice: ☒ Yes ☐ No

Sample Temperature:	6
---------------------	---

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-12-17	1313			4/12/17	1313

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/12/17	1847	M. W. Walt	[Signature]	04/13/17	0752



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

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





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

June 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace - GAC 05/24/17

OrderNo.: 1705C89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Lead

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:25:00 AM

**Lab ID:** 1705C89-001

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 2:30:54 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 2:30:54 PM
Surr: DNOP	113	86-162		%Rec	1	5/30/2017 2:30:54 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Toluene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Ethylbenzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Xylenes, Total	ND	1.5		µg/L	1	5/25/2017 7:06:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	5/25/2017 7:06:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/31/2017 5:25:16 PM
Surr: BFB	99.5	70-130		%Rec	1	5/31/2017 5:25:16 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Inlet

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:30:00 AM

**Lab ID:** 1705C89-002

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 3:37:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 3:37:33 PM
Surr: DNOP	97.0	86-162		%Rec	1	5/30/2017 3:37:33 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Toluene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Ethylbenzene	1.2	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Xylenes, Total	35	1.5	D	µg/L	2	5/25/2017 7:30:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: 4-Bromofluorobenzene	105	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Dibromofluoromethane	106	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Toluene-d8	103	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	0.55	0.10	D	mg/L	2	5/31/2017 6:50:50 PM
Surr: BFB	103	70-130	D	%Rec	2	5/31/2017 6:50:50 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	1705C89-001CMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357826		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.4	75.4	162			
Surr: DNOP	0.25		0.2500		101	86	162			

Sample ID	LCS-32012	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357829		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	92.7	72	170			
Surr: DNOP	0.26		0.2500		103	86	162			

Sample ID	MB-32012	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357830		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		99.5	86	162			

Sample ID	1705C89-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID:	32012	RunNo:	43153					
Prep Date:	5/30/2017	Analysis Date:	5/31/2017	SeqNo:	1358343	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	97.6	75.4	162	4.40	20	
Surr: DNOP	0.25		0.2500		101	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	LCSW	Batch ID:	SL43095	RunNo:	43095						
Prep Date:		Analysis Date:	5/25/2017	SeqNo:	1356263	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	19	1.0	20.00	0	95.8	70	130				
Toluene	20	1.0	20.00	0	98.7	70	130				
Ethylbenzene	20	1.0	20.00	0	99.7	70	130				
Methyl tert-butyl ether (MTBE)	33	1.0	40.00	0	82.2	70	130				
Xylenes, Total	59	1.5	60.00	0	98.7	70	130				
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130				
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130				
Surr: Dibromofluoromethane	10		10.00		104	70	130				
Surr: Toluene-d8	11		10.00		106	70	130				

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	PBW	Batch ID:	SL43095	RunNo:	43095						
Prep Date:		Analysis Date:	5/25/2017	SeqNo:	1356266	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									
Xylenes, Total	ND	1.5									
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130				
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130				
Surr: Dibromofluoromethane	11		10.00		108	70	130				
Surr: Toluene-d8	10		10.00		103	70	130				

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

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

**Project:** River Terrace - GAC 05/24/17

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359084	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	107	75.9	120			
Surr: BFB	10		10.00		102	70	130			

Sample ID	1705c89-001a ms g	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	10		10.00		101	70	130			

Sample ID	1705c89-001a msd g	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359095	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	112	70	130	0.394	20	
Surr: BFB	10		10.00		99.9	70	130	0	0	

Sample ID	rb1	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1360778	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		100	70	130			

### Qualifiers:

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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1705C89

RcptNo: 1

Received By: Anne Thorne 5/25/2017 7:10:00 AM



Completed By: Andy Jansson 5/25/2017 8:44:02 AM



Reviewed By: ENM 05/25/17

## 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:

(&lt;2 or &gt;12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:

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			



## Turn-Around Time:

Client: **Western Refining**

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

Standard	Level 4 (Full Validation)
<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Level 4 (Full Validation)

☐ Other

X EDD (Type) \_\_\_\_\_

Container	Preservative	HEAL No.
-----------	--------------	----------

7	1	2
---	---	---

1-500-ml

5 VOA	HCl	—007—
-------	-----	-------

Cool  
200-1

Received by:	/	Date	Time
--------------	---	------	------

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

2/15/2015

contracted to other accredited laboratories. This serves as notice of this



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

PO#12618990

Project Manager:

Kelly Robinson

**Sampler:** Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature:	10°
---------------------	-----

Container	Preservative	HEAL No.
-----------	--------------	----------

7	1	2
8	3	4
9	5	6
10	7	8
11	9	10
12	11	12
13	13	14
14	15	16
15	17	18
16	19	20
17	21	22
18	23	24
19	25	26
20	27	28
21	29	30
22	31	32
23	33	34
24	35	36
25	37	38
26	39	40
27	41	42
28	43	44
29	45	46
30	47	48
31	49	50
32	51	52
33	53	54
34	55	56
35	57	58
36	59	60
37	61	62
38	63	64
39	65	66
40	67	68
41	69	70
42	71	72
43	73	74
44	75	76
45	77	78
46	79	80
47	81	82
48	83	84
49	85	86
50	87	88
51	89	90
52	91	92
53	93	94
54	95	96
55	97	98
56	99	100

1-500-ml

5 VOA	HCl	—007—
-------	-----	-------

Cool  
200-1

Received by:	/	Date	Time
--------------	---	------	------

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

2/15/2015

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





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

June 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC 6 14 2017

OrderNo.: 1706900

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lag

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:10:00 AM

**Lab ID:** 1706900-001

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 1:37:04 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 1:37:04 PM
Surr: DNOP	114	86-162		%Rec	1	6/20/2017 1:37:04 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:07:27 AM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:07:27 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:07:27 AM
Surr: BFB	91.0	70-130		%Rec	1	6/19/2017 11:07:27 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lead

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:20:00 AM

**Lab ID:** 1706900-002

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 2:43:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 2:43:50 PM
Surr: DNOP	122	86-162		%Rec	1	6/20/2017 2:43:50 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:36:52 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:36:52 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:36:52 AM
Surr: BFB	89.1	70-130		%Rec	1	6/19/2017 11:36:52 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Inlet

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:30:00 AM

**Lab ID:** 1706900-003

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.32	0.20		mg/L	1	6/20/2017 3:06:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 3:06:09 PM
Surr: DNOP	126	86-162		%Rec	1	6/20/2017 3:06:09 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Toluene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Ethylbenzene	3.3	1.0		µg/L	1	6/19/2017 12:06:22 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Xylenes, Total	14	1.5		µg/L	1	6/19/2017 12:06:22 PM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: 4-Bromofluorobenzene	87.7	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Toluene-d8	101	70-130		%Rec	1	6/19/2017 12:06:22 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	0.57	0.050		mg/L	1	6/19/2017 12:06:22 PM
Surr: BFB	84.5	70-130		%Rec	1	6/19/2017 12:06:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	MB-32361		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1374970		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	0.59		0.5000		118	86	162			

Sample ID	1706900-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375177		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1706900-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375178		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162	3.79	20	
Surr: DNOP	0.31		0.2500		124	86	162	0	0	

Sample ID	LCS-32361		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.29		0.2500		114	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
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID: R43623			RunNo: 43623					
Prep Date:		Analysis Date: 6/19/2017			SeqNo: 1374233		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		113	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	12		10.00		119	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R43623			RunNo: 43623					
Prep Date:		Analysis Date: 6/19/2017			SeqNo: 1374234		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Sample ID	1706900-001ams		SampType: MS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	Lag		Batch ID: R43623		RunNo: 43623					
Prep Date:			Analysis Date: 6/19/2017		SeqNo: 1374236		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	118	70	130			
Toluene	18	1.0	20.00	0	88.9	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	12		10.00		118	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Sample ID	1706900-001amsd		SampType:	MSD		TestCode:	EPA Method 8260: Volatiles Short List				
Client ID:	Lag		Batch ID:	R43623		RunNo:	43623				
Prep Date:			Analysis Date:	6/19/2017		SeqNo:	1374237	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	23	1.0	20.00	0	114	70	130	3.77	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 Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	1706900-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623						
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374237	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	18	1.0	20.00	0	90.0	70	130	1.26	20		
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130	0	0		
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0		
Surr: Dibromofluoromethane	11		10.00		110	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.3	70	130	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374219	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	75.9	120			
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	1706900-002ams	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374223	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0.03220	91.8	70	130			
Surr: BFB	8.9		10.00		89.0	70	130			

Sample ID	1706900-002amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0.03220	84.2	70	130	7.96	20	
Surr: BFB	8.9		10.00		88.8	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1706900**

RcptNo: **1**

Received By: **Sophia Campuzano**

6/15/2017 9:00:00 AM

Completed By: **Ashley Gallegos**

6/15/2017 2:40:06 PM

Reviewed By: **ENN**
**06/16/17**
*Sophia Campuzano*
*Ashley Gallegos*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks: \_\_\_\_\_

## 18. Cooler Information

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



Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

**X Level 4 (Full Validation)**

☐ Other

**X** EDD (Type)

Chain-of-Custody Record Turn-Around Time:☒ Standard ☐ RushProject Name: **GAC**

6/14/2017

Project #:

PO#12618990

Project Manager:

Kelly Robinson

**Sampler:** Michael A Wicker

On Ice: ☒ Yes ☐ No


Sample Temperature: 2.3

[illegible]

Date:	Time:
-------	-------

6/14/17 1574

Relinquished by:



Received by:

1891

Date	Time
------	------

6/4/75

Remarks:	
----------	--

Date: \_\_\_\_\_ Time: \_\_\_\_\_

6/14/15 1915

Relinquished by:

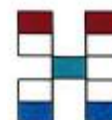
Ami

Received by:

Erskine

Date \_\_\_\_\_ Time \_\_\_\_\_

6115117 0



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

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





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707610

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707610  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707610**

Date Reported: **7/26/2017**

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:30:00 AM

**Lab ID:** 1707610-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.89	0.20		mg/L	1	7/24/2017 2:15:26 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 2:15:26 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 2:15:26 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.8	0.050	P	mg/L	1	7/14/2017 2:22:22 PM	G44219
Surr: BFB	352	52.3-138	SP	%Rec	1	7/14/2017 2:22:22 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Ethylbenzene	20	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Xylenes, Total	26	1.5	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: 4-Bromofluorobenzene	91.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Dibromofluoromethane	99.1	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Toluene-d8	107	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	1707610-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Inlet	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404671		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.9	0.20	2.500	0.8940	119	75.4	162			
Surr: DNOP	0.29		0.2500		116	86	162			

Sample ID	LCS-32852	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404673		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	0.59		0.5000		118	86	162			

Sample ID	1707610-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Inlet		Batch ID:	32852		RunNo:	44411				
Prep Date:	7/18/2017		Analysis Date:	7/24/2017		SeqNo:	1404774		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	0.8940	126	75.4	162	4.55	20		
Surr: DNOP	0.30		0.2500		120	86	162	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	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
PQL Practical Quantitative 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1707610**

RcptNo: **1**

Received By: **Anne Thorne**

7/13/2017 7:10:00 AM



Completed By: **Ashley Gallegos**

7/13/2017 10:02:10 AM



Reviewed By: 

7/14/17

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



## Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: 7-12-2017

Project #:

PO#12621258

Project Manager: Kelly Robinson

**X Level 4 (Full Validation)**

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature:  $3.5 - (F - 1.0) = 2.5$

[illegible]

Remarks:	
----------	--

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





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707611

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707611  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707611**Date Reported: **7/26/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC-Lead**Project:** GAC Monthly 7 12 2017**Collection Date:** 7/12/2017 11:20:00 AM**Lab ID:** 1707611-001**Matrix:** AQUEOUS**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	7/24/2017 3:22:12 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 3:22:12 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 3:22:12 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	7/14/2017 2:46:03 PM	G44219
Surr: BFB	85.0	52.3-138	P	%Rec	1	7/14/2017 2:46:03 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Ethylbenzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Xylenes, Total	ND	1.5	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.7	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: 4-Bromofluorobenzene	93.4	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Dibromofluoromethane	98.2	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Toluene-d8	106	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	<b>LCS-32852</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>LCSW</b>		Batch ID: <b>32852</b>		RunNo: <b>44411</b>					
Prep Date:	<b>7/18/2017</b>		Analysis Date: <b>7/24/2017</b>		SeqNo: <b>1404672</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	<b>MB-32852</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>PBW</b>		Batch ID: <b>32852</b>		RunNo: <b>44411</b>					
Prep Date:	<b>7/18/2017</b>		Analysis Date: <b>7/24/2017</b>		SeqNo: <b>1404673</b>		Units: <b>mg/L</b>			
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	0.59		0.5000		118	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
PQL Practical Quantitative 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	52.3	138			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1707611

RcptNo: 1

Received By: Anne Thorne

7/13/2017 7:10:00 AM

Completed By: Ashley Gallegos

7/13/2017 10:05:33 AM

Reviewed By:

7/14/17


## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

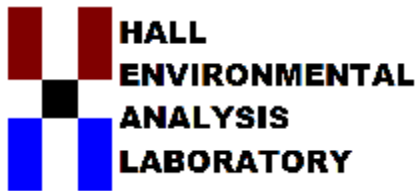
## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Yes			









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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708345

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708345

Date Reported: 8/18/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:30:00 AM

**Lab ID:** 1708345-001

**Matrix:** AQUEOUS

**Received Date:** 8/3/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/8/2017 1:58:00 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 1:58:00 PM	33233
Surr: DNOP	115	79.2-146		%Rec	1	8/8/2017 1:58:00 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	8/11/2017 12:28:41 PM	G44930
Surr: BFB	94.0	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Toluene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Ethylbenzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Xylenes, Total	ND	1.5	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Surr: 1,2-Dichloroethane-d4	116	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: 4-Bromofluorobenzene	93.1	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Dibromofluoromethane	109	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Toluene-d8	104	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range						
Client ID:	PBW	Batch ID: 33233		RunNo: 44776						
Prep Date:	8/8/2017	Analysis Date: 8/8/2017		SeqNo: 1416042		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	0.55		0.5000		110	79.2	146			

Sample ID	1708345-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1417171		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	1708345-001BMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	GAC Lead		Batch ID:	33233		RunNo:	44776				
Prep Date:	8/8/2017		Analysis Date:	8/8/2017		SeqNo:	1417172		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.70	20		
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421330	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421331	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050									
Surr: BFB	9.2		10.00		92.2	70	130				

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120				
Surr: BFB	9.6		10.00		95.7	70	130				

Sample ID	1708345-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421055	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130				P
Surr: BFB	9.3		10.00		93.3	70	130				P

Sample ID	1708345-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421056	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	70	130	1.43	20		P
Surr: BFB	9.5		10.00		94.9	70	130	0	0		P

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708345

RcptNo: 1

Received By: Anne Thorne

8/3/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:26:38 PM

Reviewed By: ENM/ag

08/07/2017

*Anne Thorne*  
*AG*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_ 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	1.1	Good	Yes			



# Chain-of-Custody Record

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

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **8-2-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **1.1**

Container Type and #

Preservative Type

HEAL No.

**1708345**

**-001**

**-001**

5 VOA

1-250-ml Amber

HCl

Cool

Sample Request ID

GAC - Lead

GAC - Lead

Matrix

H<sub>2</sub>O

H<sub>2</sub>O

Date

**8-2-17**

**↓**

Time

**1030**

**↓**

Remarks:

Received by: **Christ Wade**

Date: **8/2/17**

Time: **1445**

Relinquished by: **Christ Wade**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christ Wade**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christ Wade**

Date: **8/2/17**

Time: **1804**

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Date: **8/2/17**

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Relinquished by: **Christ Wade**

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Date: **8/2/17**

Time: **1804**

Relinquished by: **Christ Wade**

Date: **8/2/17**

Time: **1804**

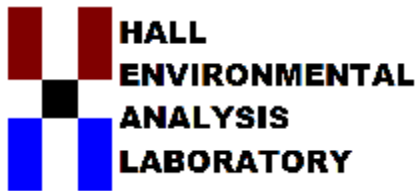
Relinquished by: **Christ Wade**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christ Wade**





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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708346

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/4/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708346

Date Reported: 8/18/2017

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

**Client Sample ID:** GAC Inlet

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:40:00 AM

**Lab ID:** 1708346-001

**Matrix:** AQUEOUS

**Received Date:** 8/4/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.59	0.20		mg/L	1	8/8/2017 3:04:47 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 3:04:47 PM	33233
Surr: DNOP	114	79.2-146		%Rec	1	8/8/2017 3:04:47 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	1.7	0.050		mg/L	1	8/11/2017 12:57:39 PM	G44930
Surr: BFB	97.5	70-130		%Rec	1	8/11/2017 12:57:39 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Toluene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Ethylbenzene	42	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Xylenes, Total	24	1.5		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Toluene-d8	104	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID:	33233		RunNo:	44776				
Prep Date:	8/8/2017		Analysis Date:	8/8/2017		SeqNo:	1416042		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	0.55		0.5000		110	79.2	146				

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421330</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421331</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID <b>1708346-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421334</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID <b>1708346-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421335</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	7.15	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	1708346-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC Inlet	Batch ID:	SL44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421335	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	98.0	70	130	3.72	20		
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.1		10.00		90.6	70	130	0	0		
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130	0	0		
Surr: Toluene-d8	11		10.00		107	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.2		10.00		92.2	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120			
Surr: BFB	9.6		10.00		95.7	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708346

RcptNo: 1

Received By: Anne Thorne

8/4/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:31:44 PM

Reviewed By:

ENM/ag

08/04/17

*Anne Thorne*  
*AG*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: **505-632-4166**

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

**X Level 4 (Full Validation)**

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: 8 - 2 - 2017

Project #:


PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 16

Date: 8/2/17	Time: 1445	Relinquished by: 	Received by: Christ Waeter	Date 8/2/17	Time 1445	Remarks:
Date: 8/2/17	Time: 1804	Relinquished by: Christ Waeter	Received by: Alan	Date 8/2/17	Time 0710	



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

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





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

September 28, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 9-20-2017

OrderNo.: 1709B22

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/21/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001A

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 1:35:29 PM	B45921
Surr: 1,2-Dichloroethane-d4	95.0	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Toluene-d8	99.7	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 1:35:29 PM	D45921
Surr: BFB	94.2	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001B

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 12:30:40 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 12:30:40 PM	34022
Surr: DNOP	132	0	79.2-146		%Rec	1	9/25/2017 12:30:40 PM	34022

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002A

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Methyl tert-butyl ether (MTBE)	0.54	0.24	1.0	J	µg/L	1	9/27/2017 3:01:25 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 3:01:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	98.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 3:01:25 PM	D45921
Surr: BFB	91.9	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002B

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 1:36:57 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:36:57 PM	34022
Surr: DNOP	133	0	79.2-146		%Rec	1	9/25/2017 1:36:57 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003A

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Toluene	0.092	0.064	1.0	J	µg/L	1	9/27/2017 4:27:25 PM	B45921
Ethylbenzene	1.9	0.093	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Xylenes, Total	2.5	0.32	1.5		µg/L	1	9/27/2017 4:27:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	97.6	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Dibromofluoromethane	99.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	0.53	0.0097	0.050		mg/L	1	9/27/2017 4:27:25 PM	D45921
Surr: BFB	92.7	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003B

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.21	0.19	0.20		mg/L	1	9/25/2017 1:59:13 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:59:13 PM	34022
Surr: DNOP	136	0	79.2-146		%Rec	1	9/25/2017 1:59:13 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709B22-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457337	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	119	75.4	162			
Surr: DNOP	0.33		0.2500		133	79.2	146			

Sample ID	1709B22-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457338	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	75.4	162	4.57	20	
Surr: DNOP	0.33		0.2500		133	79.2	146	0	0	

Sample ID	LCS-34022	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457341	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.31		0.2500		123	79.2	146			

Sample ID	MB-34022	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457342	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	0.61		0.5000		122	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460191	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460192	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.0	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.4	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	1709b22-001a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460194	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.1	70	130			
Toluene	20	1.0	20.00	0	98.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130	0.597	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 Quantitative 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921						
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	96.6	70	130	1.43	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0		
Surr: Toluene-d8	10		10.00		99.7	70	130	0	0		

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 1709B22

28-Sep-17

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

**Project:** GAC Quarterly 9-20-2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460211</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		93.3	70	130			

Sample ID <b>2.5ug gro lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460212</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	75.9	120			
Surr: BFB	9.3		10.00		93.2	70	130			

Sample ID <b>1709b22-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460215</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	9.3		10.00		93.4	70	130			

Sample ID <b>1709b22-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460216</b>		Units: <b>mg/L</b>					
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	70	130	0.723	20	
Surr: BFB	9.2		10.00		91.5	70	130	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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  
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: 1709B22

RcptNo: 1

Received By: Anne Thorne

9.21.17 0710 To 9.22.17  
9/20/2017 1:11:00 PM

Anne Thorne

Completed By: Anne Thorne

9/21/2017 11:23:15 AM

Anne Thorne

Reviewed By:

Dennis Lugo 9/21/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			









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

November 07, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 10 31 2017

OrderNo.: 1711008

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/1/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 10 31 2017  
**Lab ID:** 1711008-001A

**Client Sample ID:** GAC - Inlet  
**Collection Date:** 10/31/2017 10:25:00 AM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	11/3/2017 5:51:51 PM	G46875
Surr: BFB	91.2	70-130		%Rec	1	11/3/2017 5:51:51 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Ethylbenzene	1.5	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Toluene-d8	104	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
				Page 1 of 8



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711008

Date Reported: 11/7/2017

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

**Client Sample ID:** GAC - Inlet

**Project:** GAC Monthly 10 31 2017

**Collection Date:** 10/31/2017 10:25:00 AM

**Lab ID:** 1711008-001B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.30	0.20		mg/L	1	11/6/2017 4:12:51 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 4:12:51 PM	34801
Surr: DNOP	117	79.2-146		%Rec	1	11/6/2017 4:12:51 PM	34801

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

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



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/3/2017 6:21:13 PM	G46875
Surr: BFB	97.9	70-130		%Rec	1	11/3/2017 6:21:13 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Ethylbenzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Dibromofluoromethane	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Toluene-d8	103	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875

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

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



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002B**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/6/2017 5:18:57 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 5:18:57 PM	34801
Surr: DNOP	114	79.2-146		%Rec	1	11/6/2017 5:18:57 PM	34801

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496769	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.3013	105	75.4	162			
Surr: DNOP	0.26		0.2500		104	79.2	146			

Sample ID	1711008-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496770	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.3013	109	75.4	162	3.15	20	
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0	

Sample ID	LCS-34801	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496772	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	72	170			
Surr: DNOP	0.28		0.2500		112	79.2	146			

Sample ID	MB-34801	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496773	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	0.59		0.5000		118	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495601</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495604</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.8	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>1711008-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495607</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>1711008-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495608</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.7	70	130	0.504	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-002a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875						
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495608	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	97.8	70	130	3.60	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0		
Surr: Toluene-d8	10		10.00		102	70	130	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495610	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.5		10.00		95.1	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495611	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	70	130			
Surr: BFB	9.7		10.00		96.6	70	130			

Sample ID	1711008-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495615	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	93.9	70	130			
Surr: BFB	9.3		10.00		93.1	70	130			

Sample ID	1711008-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	92.4	70	130	0.929	20	
Surr: BFB	9.2		10.00		92.3	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1711008

RcptNo: 1

Received By: Anne Thorne 11/1/2017 7:00:00 AM

*Anne Thorne*

Completed By: Isaiah Ortiz 11/1/2017 9:19:35 AM

*IO*

Reviewed By: *AT 11/03/17*

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			









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

December 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 11-22-2017

OrderNo.: 1711C34

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/23/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001A

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Toluene-d8	101	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452

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

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



**Analytical Report**Lab Order: **1711C34**Date Reported: **12/6/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC Inlet**Project:** GAC Monthly 11-22-2017**Collection Date:** 11/22/2017 12:40:00 PM**Lab ID:** 1711C34-001B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	12/2/2017 3:43:20 AM	GW4747
Surr: BFB	177	69.3-150	S	%Rec	1	12/2/2017 3:43:20 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001C

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.26	0.20		mg/L	1	11/29/2017 6:40:57 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 6:40:57 PM	35199
Surr: DNOP	121	79.2-146		%Rec	1	11/29/2017 6:40:57 PM	35199

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-002A

**Client Sample ID:** GAC Lead  
**Collection Date:** 11/22/2017 12:50:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Toluene-d8	104	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/2/2017 4:06:43 AM	GW4747
Surr: BFB	88.2	69.3-150		%Rec	1	12/2/2017 4:06:43 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002C

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/29/2017 7:46:50 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 7:46:50 PM	35199
Surr: DNOP	125	79.2-146		%Rec	1	11/29/2017 7:46:50 PM	35199

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	1711C34-001CMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID: 35199			RunNo: 47389					
Prep Date:	11/28/2017	Analysis Date: 11/29/2017			SeqNo: 1513103		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.2629	108	89.6	145			
Surr: DNOP	0.27		0.2500		108	79.2	146			

Sample ID	1711C34-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513104	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.2629	106	89.6	145	1.74	20	
Surr: DNOP	0.27		0.2500		108	79.2	146	0	0	

Sample ID	LCS-35199		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 35199		RunNo: 47389					
Prep Date:	11/28/2017		Analysis Date: 11/29/2017		SeqNo: 1513106		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	76.5	158			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	MB-35199	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35199			RunNo: 47389					
Prep Date:	11/28/2017	Analysis Date: 11/29/2017			SeqNo: 1513107		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	0.56		0.5000		113	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	RB-II	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516078	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		92.1	69.3	150			

Sample ID	2.5UG GRO LCS-II	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516079	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.8	75.8	123			
Surr: BFB	21		20.00		103	69.3	150			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514491	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcsb	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514492	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.9	70	130			
Toluene	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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  
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: 1711C34

RcptNo: 1

Received By: Andy Freeman

11/23/2017 8:35:00 AM

Completed By: Anne Thorne

11/28/2017 9:52:46 AM

Reviewed By: *SRP* 11/28/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			









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

December 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 12 13 2017

OrderNo.: 1712935

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001A

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Surr: 1,2-Dichloroethane-d4	93.7	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Dibromofluoromethane	99.1	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.026	0.0097	0.050	J	mg/L	1	12/18/2017 12:42:17 PM	R47868
Surr: BFB	103	0	70-130		%Rec	1	12/18/2017 12:42:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001B

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 7:33:30 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 7:33:30 AM	35578
Surr: DNOP	123	0	79.2-146		%Rec	1	12/20/2017 7:33:30 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002A

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Methyl tert-butyl ether (MTBE)	0.32	0.24	1.0	J	µg/L	1	12/19/2017 5:31:35 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Surr: 1,2-Dichloroethane-d4	90.4	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Dibromofluoromethane	96.3	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.034	0.0097	0.050	J	mg/L	1	12/18/2017 1:05:17 PM	R47868
Surr: BFB	99.6	0	70-130		%Rec	1	12/18/2017 1:05:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002B

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 8:39:35 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 8:39:35 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 8:39:35 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003A

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Ethylbenzene	1.3	0.093	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Xylenes, Total	1.6	0.32	1.5		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: 4-Bromofluorobenzene	87.9	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Dibromofluoromethane	93.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: AG	
Gasoline Range Organics (GRO)	0.78	0.0097	0.050		mg/L	1	12/18/2017 1:28:16 PM	R47868
Surr: BFB	94.1	0	70-130		%Rec	1	12/18/2017 1:28:16 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003B

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.31	0.19	0.20		mg/L	1	12/20/2017 9:01:37 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 9:01:37 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 9:01:37 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534630		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	111	89.6	145			
Surr: DNOP	0.29		0.2500		116	79.2	146			

Sample ID	1712935-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	35578	RunNo:	47873					
Prep Date:	12/18/2017	Analysis Date:	12/20/2017	SeqNo:	1534631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	113	89.6	145	1.58	20	
Surr: DNOP	0.29		0.2500		118	79.2	146	0	0	

Sample ID	LCS-35578	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534634		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	76.5	158			
Surr: DNOP	0.30		0.2500		119	79.2	146			

Sample ID	MB-35578	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534635		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	0.47		0.5000		93.5	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL47903	RunNo:	47903					
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533783	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL47903	RunNo:	47903					
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533784	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.8	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID	1712935-001a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903					
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533792	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID	1712935-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903					
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533793	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130	2.43	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 Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903						
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533793	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	95.6	70	130	0.265	20		
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.7	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0		
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.4	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531812	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	70	130			
Surr: BFB	9.8		10.00		97.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531813	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1712935

RcptNo: 1

Received By: Anne Thorne 12/15/2017 7:30:00 AM

Completed By: Michelle Garcia 12/15/2017 11:01:06 AM

Reviewed By: SRE 12/15/17

*Anne Thorne*  
*Michelle Garcia*

### Chain of Custody

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

### Log In

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

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

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

17. Additional remarks:

### 18. Cooler Information

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









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

January 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 1-4-2017

OrderNo.: 1701161

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:10:00 PM

**Lab ID:** 1701161-001

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	1/11/2017 12:25:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 12:25:23 PM
Surr: DNOP	126	67.9-149		%Rec	1	1/11/2017 12:25:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/10/2017 11:22:10 AM
Surr: BFB	79.7	66.4-120		%Rec	1	1/10/2017 11:22:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Ethylbenzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Xylenes, Total	ND	1.5		µg/L	1	1/9/2017 1:30:08 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: 4-Bromofluorobenzene	84.1	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Toluene-d8	90.8	70-130		%Rec	1	1/9/2017 1:30:08 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:20:00 PM

**Lab ID:** 1701161-002

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	0.84	0.20		mg/L	1	1/11/2017 1:30:12 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 1:30:12 PM
Surr: DNOP	130	67.9-149		%Rec	1	1/11/2017 1:30:12 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	2.8	0.50		mg/L	10	1/10/2017 11:46:41 AM
Surr: BFB	103	66.4-120		%Rec	10	1/10/2017 11:46:41 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: DJF
Benzene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Ethylbenzene	170	10		µg/L	10	1/9/2017 9:17:10 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Xylenes, Total	680	15		µg/L	10	1/9/2017 9:17:10 PM
Surr: 1,2-Dichloroethane-d4	75.1	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Dibromofluoromethane	79.7	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Toluene-d8	93.9	70-130		%Rec	1	1/9/2017 1:59:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	MB-29629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252027		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	0.62		0.5000		123	67.9	149			

Sample ID	1701161-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252070		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	115	75.4	162			
Surr: DNOP	0.28		0.2500		112	67.9	149			

Sample ID	LCS-29629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252071		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	72	170			
Surr: DNOP	0.28		0.2500		111	67.9	149			

Sample ID	1701161-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Lead		Batch ID:	29629		RunNo:	39953				
Prep Date:	1/11/2017		Analysis Date:	1/11/2017		SeqNo:	1252199		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.07	20		
Surr: DNOP	0.28		0.2500		112	67.9	149	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251625	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	15		20.00		76.6	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	79.1	123			
Surr: BFB	18		20.00		89.0	66.4	120			

Sample ID	1701161-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251632	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.6	0.50	5.000	2.830	94.8	64.8	129			
Surr: BFB	210		200.0		105	66.4	120			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250952	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130			
Surr: Toluene-d8	8.9		10.00		88.9	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1701161

RcptNo: 1

Received by/date:

*R-m*

*01/05/17*

Logged By: Ashley Gallegos

1/5/2017 7:25:00 AM

*Ag*

Completed By: Ashley Gallegos

1/5/2017 12:25:32 PM

*Ag*

Reviewed By:

*[Signature]*

*01/05/17*

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

# of preserved  
bottles checked  
for pH:  
( $<2$  or  $>12$  unless noted)  
Adjusted?  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			



<b>Chain-of-Custody Record</b>		Turn-Around Time:
Client: <b>Western Refining</b>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush
		Project Name: <b>GAC - Lead</b>
Mailing Address: <b>#50 CR 4990</b>		Date: <u>1-4-2017</u>
<b>Bloomfield, NM 87413</b>		Project #:
Phone #: <b>505-632-4135</b>		PO#12615519
email or Fax#:		Project Manager:
QA/QC Package:		
<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Level 4 (Full Validation)	
<input type="checkbox"/> Other _____		
<input checked="" type="checkbox"/> EDD (Type) _____		
		Sampler: <u>Michael A Wicker</u>
		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Sample Temperature: <u>2.2</u>

☒ Standard      ☐ Rush

Date: 1 - 4 - 2017

Project #:

PO#12615519





**Project Manager:**

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 72

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-4-17	1530			1/4/17	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time
1/4/17	1830			01/05/17	0725

Remarks:

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





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

February 27, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 2-15-2017

OrderNo.: 1702729

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/16/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:20:00 AM

**Lab ID:** 1702729-001

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	2/21/2017 2:43:43 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 2:43:43 PM	30313
Surr: DNOP	129	86-162		%Rec	1	2/21/2017 2:43:43 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2017 12:15:40 PM	G40920
Surr: BFB	87.1	52.3-138		%Rec	1	2/22/2017 12:15:40 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Toluene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Ethylbenzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Xylenes, Total	ND	1.5		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Dibromofluoromethane	109	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Toluene-d8	99.0	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:30:00 AM

**Lab ID:** 1702729-002

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	2/21/2017 4:09:02 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 4:09:02 PM	30313
Surr: DNOP	114	86-162		%Rec	1	2/21/2017 4:09:02 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.50		mg/L	10	2/22/2017 12:39:07 PM	G40920
Surr: BFB	109	52.3-138		%Rec	10	2/22/2017 12:39:07 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Toluene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Ethylbenzene	180	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Xylenes, Total	700	7.5	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	96.4	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: 4-Bromofluorobenzene	107	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Dibromofluoromethane	104	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Toluene-d8	102	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	LCS-30313		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280625		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	137	72	170			
Surr: DNOP	0.30		0.2500		121	86	162			

Sample ID	MB-30313	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range						
Client ID:	PBW	Batch ID: 30313		RunNo: 40870						
Prep Date:	2/21/2017	Analysis Date: 2/21/2017		SeqNo: 1280626		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	0.55		0.5000		110	86	162			

Sample ID	1702729-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280821		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	133	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1702729-001CMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range			
Client ID:	GAC Lead		Batch ID:	30313		RunNo:	40870				
Prep Date:	2/21/2017		Analysis Date:	2/21/2017		SeqNo:	1280822		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	130	75.4	162	2.28	20		
Surr: DNOP	0.29		0.2500		115	86	162	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281743	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	17		20.00		86.8	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281744	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	79.1	123			
Surr: BFB	19		20.00		94.5	52.3	138			

Sample ID	1702729-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281750	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.9	0.50	5.000	3.902	100	64.8	129			
Surr: BFB	230		200.0		117	52.3	138			

Sample ID	1702729-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281751	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.2	0.50	5.000	3.902	85.2	64.8	129	8.90	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279940	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	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279941	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1702729

RcptNo: 1

Received by/date: AT 02/16/17

Logged By: Anne Thorne 2/16/2017 7:10:00 AM

Completed By: Anne Thorne 2/16/2017 9:41:17 AM

Reviewed By: mg 02/17/17

*Anne Thorne*

*Anne Thorne*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			



# Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Lead**

Date: **2-15-2017**

Project #: **4031-2**

PO# **12615519**

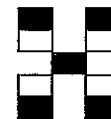
Project Manager:

*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.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)	8015B DRO Extended	Air Bubbles (Y or N)
2-15-17	1020	H <sub>2</sub> O	GAC - Lead	5 VOA	HCl	201			x							x			
	↓	H <sub>2</sub> O	GAC - Lead	1-500-ml 250 Amber	Cool	201												x	
	1030	H <sub>2</sub> O	GAC -Inlet	5 VOA	HCl	202			x							x			
	↓	H <sub>2</sub> O	GAC -Inlet	1-500-ml 250 Amber	Cool	202												x	

Date: 2-15-17 Time: 1540 Relinquished by: *[Signature]* Received by: *[Signature]* Date: 2/15/17 Time: 1540

Date: 2/15/17 Time: 1808 Relinquished by: *[Signature]* Received by: *[Signature]* Date: 2/16/17 Time: 0710

Remarks:

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





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

March 15, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 3-8-2017

OrderNo.: 1703440

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/9/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lead

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:30:00 AM

**Lab ID:** 1703440-001

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 1:09:38 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 1:09:38 PM
Surr: DNOP	110	86-162		%Rec	1	3/13/2017 1:09:38 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 4:11:42 PM
Surr: BFB	87.1	52.3-138		%Rec	1	3/9/2017 4:11:42 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	3/9/2017 2:23:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 2:23:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Toluene-d8	96.4	70-130		%Rec	1	3/9/2017 2:23:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:35:00 AM

**Lab ID:** 1703440-002

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	0.67	0.20		mg/L	1	3/13/2017 2:33:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 2:33:50 PM
Surr: DNOP	105	86-162		%Rec	1	3/13/2017 2:33:50 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2.6	0.50		mg/L	10	3/9/2017 4:35:02 PM
Surr: BFB	108	52.3-138		%Rec	10	3/9/2017 4:35:02 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Ethylbenzene	80	1.0		µg/L	1	3/9/2017 2:47:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Xylenes, Total	230	15		µg/L	10	3/10/2017 11:25:00 AM
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/9/2017 2:47:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lag

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:25:00 AM

**Lab ID:** 1703440-003

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 3:02:45 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 3:02:45 PM
Surr: DNOP	94.5	86-162		%Rec	1	3/13/2017 3:02:45 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 6:08:16 PM
Surr: BFB	87.4	52.3-138		%Rec	1	3/9/2017 6:08:16 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 3:10:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	3/9/2017 3:10:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	MB-30629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1294967		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	0.48		0.5000		95.8	86	162			

Sample ID	LCS-30629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295010		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	95.8	72	170			
Surr: DNOP	0.23		0.2500		90.4	86	162			

Sample ID	1703440-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295012		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		110	86	162			

Sample ID	1703440-001CMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Lead		Batch ID:	30629		RunNo:	41321				
Prep Date:	3/10/2017		Analysis Date:	3/13/2017		SeqNo:	1295043		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	3.23	20		
Surr: DNOP	0.26		0.2500		105	86	162	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293384	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	17		20.00		87.2	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293385	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	79.1	123			
Surr: BFB	19		20.00		94.4	52.3	138			

Sample ID	1703440-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.3	0.50	5.000	2.586	93.8	64.8	129			
Surr: BFB	230		200.0		115	52.3	138			

Sample ID	1703440-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293389	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.0	0.50	5.000	2.586	88.0	64.8	129	4.09	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294312	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Ethylbenzene	20	1.0	20.00	0	100	70	130			
Methyl tert-butyl ether (MTBE)	39	1.0	40.00	0	96.8	70	130			
Xylenes, Total	60	1.5	60.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294316	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294831	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1703440

RcptNo: 1

Received by/date:	AT	03/09/17
Logged By:	Lindsay Mangin	3/9/2017 7:10:00 AM
Completed By:	Lindsay Mangin	3/9/2017 8:30:10 AM
Reviewed By:	WS	03/09/17

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

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

## Special Handling (if applicable)

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

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



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

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 3-8-2017

Project #:

PO#12618990

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0



## HALL ENVIRONMENTAL ANALYSIS LABORATORY


[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

Date:	Time:	Relinquished by:
3-8-17	1545	

Date:	Time:	Relinquished by:
3/8/17	1952	Christopher Walker

Received by:	Date	Time
Mattie White	3/8/17	1545

Received by: [Signature] Date 03/09/17 Time 0710

Remarks:

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





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

April 19, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 4 12 2017

OrderNo.: 1704550

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/13/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

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

**Client Sample ID:** GAC Lead

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:45:00 AM

**Lab ID:** 1704550-001

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/18/2017 1:07:14 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 1:07:14 AM
Surr: DNOP	100	86-162		%Rec	1	4/18/2017 1:07:14 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/17/2017 6:15:37 PM
Surr: BFB	94.3	52.3-138		%Rec	1	4/17/2017 6:15:37 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2017 5:43:00 PM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/14/2017 5:43:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

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

**Client Sample ID:** GAC Inlet

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:50:00 AM

**Lab ID:** 1704550-002

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.64	0.20		mg/L	1	4/18/2017 2:31:30 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 2:31:30 AM
Surr: DNOP	105	86-162		%Rec	1	4/18/2017 2:31:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.25		mg/L	5	4/17/2017 6:39:00 PM
Surr: BFB	137	52.3-138		%Rec	5	4/17/2017 6:39:00 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Ethylbenzene	160	10		µg/L	10	4/14/2017 6:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Xylenes, Total	720	15		µg/L	10	4/14/2017 6:07:00 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/14/2017 6:31:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	1704550-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324843		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	75.4	162			
Surr: DNOP	0.26		0.2500		104	86	162			

Sample ID	1704550-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID:	31252	RunNo:	42147					
Prep Date:	4/14/2017	Analysis Date:	4/18/2017	SeqNo:	1324844	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	75.4	162	3.18	20	
Surr: DNOP	0.26		0.2500		102	86	162	0	0	

Sample ID	LCS-31252	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324846		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	98.4	72	170			
Surr: DNOP	0.25		0.2500		98.2	86	162			

Sample ID	MB-31252	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324847		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	0.49		0.5000		98.4	86	162			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID <b>B30</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324697</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		93.3	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324698</b>		Units: <b>mg/L</b>					
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	20		20.00		101	52.3	138			

Sample ID <b>1704550-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324701</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.2	0.25	2.500	3.938	88.8	64.8	129			
Surr: BFB	140		100.0		145	52.3	138			S

Sample ID <b>1704550-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324702</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.0	0.25	2.500	3.938	82.2	64.8	129	2.75	20	
Surr: BFB	140		100.0		143	52.3	138	0	0	S

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324421	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.9		10.00		89.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324422	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704550

RcptNo: 1

Received By: Anne Thorne 4/13/2017 7:52:00 AM

Completed By: Ashley Gallegos 4/13/2017 8:46:41 AM

Reviewed By: *822* 04/13/17

*Anne Thorne*  
*AG*

## 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:

(&lt;2 or &gt;12 unless noted)

Adjusted?

Checked by:

## Special Handling (if applicable)

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

Person Notified:

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			



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 4-12-2017

Project #:

PO#12618990



Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

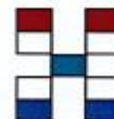
On Ice: ☒ Yes ☐ No

Sample Temperature:	6
---------------------	---

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-12-17	1313			4/12/17	1313

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/12/17	1847	M. Walt	[Signature]	04/13/17	0752



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

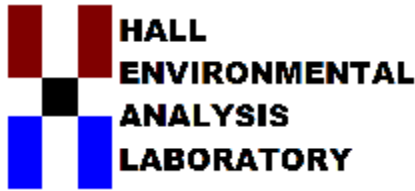
Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

[illegible]

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





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

June 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace - GAC 05/24/17

OrderNo.: 1705C89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Lead

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:25:00 AM

**Lab ID:** 1705C89-001

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 2:30:54 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 2:30:54 PM
Surr: DNOP	113	86-162		%Rec	1	5/30/2017 2:30:54 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Toluene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Ethylbenzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Xylenes, Total	ND	1.5		µg/L	1	5/25/2017 7:06:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	5/25/2017 7:06:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/31/2017 5:25:16 PM
Surr: BFB	99.5	70-130		%Rec	1	5/31/2017 5:25:16 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Inlet

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:30:00 AM

**Lab ID:** 1705C89-002

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 3:37:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 3:37:33 PM
Surr: DNOP	97.0	86-162		%Rec	1	5/30/2017 3:37:33 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Toluene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Ethylbenzene	1.2	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Xylenes, Total	35	1.5	D	µg/L	2	5/25/2017 7:30:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: 4-Bromofluorobenzene	105	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Dibromofluoromethane	106	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Toluene-d8	103	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	0.55	0.10	D	mg/L	2	5/31/2017 6:50:50 PM
Surr: BFB	103	70-130	D	%Rec	2	5/31/2017 6:50:50 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	1705C89-001CMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357826		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.4	75.4	162			
Surr: DNOP	0.25		0.2500		101	86	162			

Sample ID	LCS-32012	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357829		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	92.7	72	170			
Surr: DNOP	0.26		0.2500		103	86	162			

Sample ID	MB-32012	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357830		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		99.5	86	162			

Sample ID	1705C89-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID:	32012	RunNo:	43153					
Prep Date:	5/30/2017	Analysis Date:	5/31/2017	SeqNo:	1358343	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	97.6	75.4	162	4.40	20	
Surr: DNOP	0.25		0.2500		101	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL43095	RunNo:	43095					
Prep Date:		Analysis Date:	5/25/2017	SeqNo:	1356263	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.8	70	130			
Toluene	20	1.0	20.00	0	98.7	70	130			
Ethylbenzene	20	1.0	20.00	0	99.7	70	130			
Methyl tert-butyl ether (MTBE)	33	1.0	40.00	0	82.2	70	130			
Xylenes, Total	59	1.5	60.00	0	98.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL43095	RunNo:	43095					
Prep Date:		Analysis Date:	5/25/2017	SeqNo:	1356266	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

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

**Project:** River Terrace - GAC 05/24/17

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359084	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	107	75.9	120			
Surr: BFB	10		10.00		102	70	130			

Sample ID	1705c89-001a ms g	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	10		10.00		101	70	130			

Sample ID	1705c89-001a msd g	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359095	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	112	70	130	0.394	20	
Surr: BFB	10		10.00		99.9	70	130	0	0	

Sample ID	rb1	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1360778	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		100	70	130			

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1705C89

RcptNo: 1

Received By: Anne Thorne 5/25/2017 7:10:00 AM

*Anne Thorne*

Completed By: Andy Jansson 5/25/2017 8:44:02 AM

*Andy Jansson*

Reviewed By: ENM 05/25/17

### 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:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

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			









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

June 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC 6 14 2017

OrderNo.: 1706900

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lag

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:10:00 AM

**Lab ID:** 1706900-001

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 1:37:04 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 1:37:04 PM
Surr: DNOP	114	86-162		%Rec	1	6/20/2017 1:37:04 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:07:27 AM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:07:27 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:07:27 AM
Surr: BFB	91.0	70-130		%Rec	1	6/19/2017 11:07:27 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lead

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:20:00 AM

**Lab ID:** 1706900-002

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 2:43:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 2:43:50 PM
Surr: DNOP	122	86-162		%Rec	1	6/20/2017 2:43:50 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:36:52 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:36:52 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:36:52 AM
Surr: BFB	89.1	70-130		%Rec	1	6/19/2017 11:36:52 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**Date Reported: **6/21/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** Inlet**Project:** GAC 6 14 2017**Collection Date:** 6/14/2017 11:30:00 AM**Lab ID:** 1706900-003**Matrix:** AQUEOUS**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.32	0.20		mg/L	1	6/20/2017 3:06:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 3:06:09 PM
Surr: DNOP	126	86-162		%Rec	1	6/20/2017 3:06:09 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Toluene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Ethylbenzene	3.3	1.0		µg/L	1	6/19/2017 12:06:22 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Xylenes, Total	14	1.5		µg/L	1	6/19/2017 12:06:22 PM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: 4-Bromofluorobenzene	87.7	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Toluene-d8	101	70-130		%Rec	1	6/19/2017 12:06:22 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	0.57	0.050		mg/L	1	6/19/2017 12:06:22 PM
Surr: BFB	84.5	70-130		%Rec	1	6/19/2017 12:06:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	MB-32361		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1374970		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	0.59		0.5000		118	86	162			

Sample ID	1706900-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375177		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1706900-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375178		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162	3.79	20	
Surr: DNOP	0.31		0.2500		124	86	162	0	0	

Sample ID	LCS-32361		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.29		0.2500		114	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
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID: R43623			RunNo: 43623					
Prep Date:		Analysis Date: 6/19/2017			SeqNo: 1374233		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		113	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	12		10.00		119	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R43623			RunNo: 43623					
Prep Date:		Analysis Date: 6/19/2017			SeqNo: 1374234		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Sample ID	1706900-001ams		SampType: MS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	Lag		Batch ID: R43623		RunNo: 43623					
Prep Date:			Analysis Date: 6/19/2017		SeqNo: 1374236		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	118	70	130			
Toluene	18	1.0	20.00	0	88.9	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	12		10.00		118	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Sample ID	1706900-001amsd		SampType:	MSD		TestCode:	EPA Method 8260: Volatiles Short List				
Client ID:	Lag		Batch ID:	R43623		RunNo:	43623				
Prep Date:			Analysis Date:	6/19/2017		SeqNo:	1374237	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	23	1.0	20.00	0	114	70	130	3.77	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 Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	1706900-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623						
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374237	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	18	1.0	20.00	0	90.0	70	130	1.26	20		
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130	0	0		
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0		
Surr: Dibromofluoromethane	11		10.00		110	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.3	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374219	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	75.9	120			
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	1706900-002ams	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374223	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0.03220	91.8	70	130			
Surr: BFB	8.9		10.00		89.0	70	130			

Sample ID	1706900-002amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0.03220	84.2	70	130	7.96	20	
Surr: BFB	8.9		10.00		88.8	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1706900**

RcptNo: **1**

Received By: **Sophia Campuzano**

6/15/2017 9:00:00 AM

Completed By: **Ashley Gallegos**

6/15/2017 2:40:06 PM

Reviewed By: **ENN**
**06/16/17**
*Sophia Campuzano*
*AG*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

## 18. Cooler Information

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



Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

**X Level 4 (Full Validation)**

☐ Other

**X** EDD (Type)

Chain-of-Custody Record 

Turn-Around Time:
-------------------

☒ Standard ☐ RushProject Name: **GAC**

6/14/2017

Project #:

PO#12618990

Project Manager:

Kelly Robinson

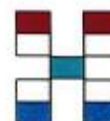
**Sampler:** Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/14/17	1524	[Signature]	Mustie West	6/14/17	1524
Date:	Time:	Relinquished by:	Received by:	Date	Time
6/14/17	1910	[Signature]	Sophi Coor	06/15/17	0900



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

Remarks:

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





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707610

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707610  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707610**

Date Reported: **7/26/2017**

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:30:00 AM

**Lab ID:** 1707610-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.89	0.20		mg/L	1	7/24/2017 2:15:26 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 2:15:26 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 2:15:26 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.8	0.050	P	mg/L	1	7/14/2017 2:22:22 PM	G44219
Surr: BFB	352	52.3-138	SP	%Rec	1	7/14/2017 2:22:22 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Ethylbenzene	20	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Xylenes, Total	26	1.5	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: 4-Bromofluorobenzene	91.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Dibromofluoromethane	99.1	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Toluene-d8	107	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	1707610-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Inlet	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404671		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.9	0.20	2.500	0.8940	119	75.4	162			
Surr: DNOP	0.29		0.2500		116	86	162			

Sample ID	LCS-32852	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404673		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	0.59		0.5000		118	86	162			

Sample ID	1707610-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Inlet		Batch ID:	32852		RunNo:	44411				
Prep Date:	7/18/2017		Analysis Date:	7/24/2017		SeqNo:	1404774		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	0.8940	126	75.4	162	4.55	20		
Surr: DNOP	0.30		0.2500		120	86	162	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	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
PQL Practical Quantitative 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1707610**

RcptNo: **1**

Received By: **Anne Thorne**

7/13/2017 7:10:00 AM



Completed By: **Ashley Gallegos**

7/13/2017 10:02:10 AM



Reviewed By: 

7/14/17

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Yes			



Turn-Around Time:

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

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Mailing Address: #50 CR 4990

Date: 7-12-2017

Bloomfield, NM 87413

Project #:

Phone #: **505-632-4166**

PO#12621258

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

Project Manager: Kelly Robinson

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other


**X** EDD (Type)

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature:  $3.5 - (F - 1.0) = 2.5$

[illegible]

Date:	Time:	Relinquished by:
7-12-17	1540	

Received by:	Date	Time
<i>[Signature]</i>	7/12/17	1540

Remarks:												
----------	--	--	--	--	--	--	--	--	--	--	--	--

Date:	Time:	Relinquished by:
7/12/17	1804	[Signature]

Received by:  Date: 07/13/17 Time: 07:00

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





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707611

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707611  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1707611

Date Reported: 7/26/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:20:00 AM

**Lab ID:** 1707611-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	7/24/2017 3:22:12 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 3:22:12 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 3:22:12 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	7/14/2017 2:46:03 PM	G44219
Surr: BFB	85.0	52.3-138	P	%Rec	1	7/14/2017 2:46:03 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Ethylbenzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Xylenes, Total	ND	1.5	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.7	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: 4-Bromofluorobenzene	93.4	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Dibromofluoromethane	98.2	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Toluene-d8	106	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	LCS-32852		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404673		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	0.59		0.5000		118	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
PQL Practical Quantitative 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	52.3	138			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1707611

RcptNo: 1

Received By: Anne Thorne

7/13/2017 7:10:00 AM

Completed By: Ashley Gallegos

7/13/2017 10:05:33 AM

Reviewed By:

7/14/17


## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



# Chain-of-Custody Record

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

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: **Kelly.Robinson@wnr.com**

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **7-12-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **3.5 - 6.6 = 2.5**

Date Time Matrix Sample Request ID

7-12-17 1120 H<sub>2</sub>O GAC - Lead

↓ H<sub>2</sub>O GAC - Lead

Container Type and #

5 VOA HCl

1-250-ml Amber Cool

Preservative Type

HEAL No. 1757611

-001

## Analysis Request

BTEX + MTBE + TMBs (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)

8081 Pesticides / 8082 PCBs

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

Air Bubbles (Y or N)

Received by: **Chowat** Date Time 7/12/17 1540

Received by: **Chowat** Date Time 7/13/17 0710

Date: 7-12-17 Time: 1540 Relinquished by: **Chowat**

Date: 7/12/17 Time: 1804 Relinquished by: **Chowat**





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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708345

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708345

Date Reported: 8/18/2017

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GAC Lead

Project: GAC Monthly 8 2 2017

Collection Date: 8/2/2017 10:30:00 AM

Lab ID: 1708345-001

Matrix: AQUEOUS

Received Date: 8/3/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/8/2017 1:58:00 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 1:58:00 PM	33233
Surr: DNOP	115	79.2-146		%Rec	1	8/8/2017 1:58:00 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	8/11/2017 12:28:41 PM	G44930
Surr: BFB	94.0	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Toluene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Ethylbenzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Xylenes, Total	ND	1.5	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Surr: 1,2-Dichloroethane-d4	116	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: 4-Bromofluorobenzene	93.1	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Dibromofluoromethane	109	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Toluene-d8	104	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	<b>LCS-33233</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>LCSW</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1416039</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	<b>MB-33233</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>PBW</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1416042</b>		Units: <b>mg/L</b>			
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	0.55		0.5000		110	79.2	146			

Sample ID	<b>1708345-001BMS</b>		SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>GAC Lead</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1417171</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	<b>1708345-001BMSD</b>		SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>GAC Lead</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1417172</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.70	20	
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421330	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421331	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050									
Surr: BFB	9.2		10.00		92.2	70	130				

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120				
Surr: BFB	9.6		10.00		95.7	70	130				

Sample ID	1708345-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421055	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130				P
Surr: BFB	9.3		10.00		93.3	70	130				P

Sample ID	1708345-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421056	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	70	130	1.43	20		P
Surr: BFB	9.5		10.00		94.9	70	130	0	0		P

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708345

RcptNo: 1

Received By: Anne Thorne

8/3/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:26:38 PM

Reviewed By: ENM/ag

08/07/2017

*Anne Thorne*  
*AG*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

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

17. Additional remarks:

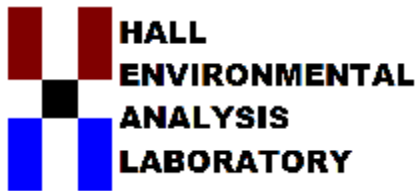
### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			









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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708346

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/4/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708346

Date Reported: 8/18/2017

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

**Client Sample ID:** GAC Inlet

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:40:00 AM

**Lab ID:** 1708346-001

**Matrix:** AQUEOUS

**Received Date:** 8/4/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.59	0.20		mg/L	1	8/8/2017 3:04:47 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 3:04:47 PM	33233
Surr: DNOP	114	79.2-146		%Rec	1	8/8/2017 3:04:47 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	1.7	0.050		mg/L	1	8/11/2017 12:57:39 PM	G44930
Surr: BFB	97.5	70-130		%Rec	1	8/11/2017 12:57:39 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Toluene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Ethylbenzene	42	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Xylenes, Total	24	1.5		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Toluene-d8	104	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	<b>LCS-33233</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>LCSW</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1416039</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	<b>MB-33233</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>PBW</b>		Batch ID: <b>33233</b>		RunNo: <b>44776</b>					
Prep Date:	<b>8/8/2017</b>		Analysis Date: <b>8/8/2017</b>		SeqNo: <b>1416042</b>		Units: <b>mg/L</b>			
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	0.55		0.5000		110	79.2	146			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421330</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421331</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID <b>1708346-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421334</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID <b>1708346-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421335</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	7.15	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	1708346-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC Inlet	Batch ID:	SL44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421335	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	98.0	70	130	3.72	20		
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.1		10.00		90.6	70	130	0	0		
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130	0	0		
Surr: Toluene-d8	11		10.00		107	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.2		10.00		92.2	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120			
Surr: BFB	9.6		10.00		95.7	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708346

RcptNo: 1

Received By: Anne Thorne

8/4/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:31:44 PM

Reviewed By:

ENM/ag

08/04/17

*Anne Thorne*  
*AG*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4166

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

**X** Level 4 (Full Validation)

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: 8 - 2 - 2017

Project #:


PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 16

Date: 8/2/17	Time: 1445	Relinquished by: 	Received by: Christ Waeter	Date 8/2/17	Time 1445	Remarks:
Date: 8/2/17	Time: 1804	Relinquished by: Christ Waeter	Received by: Alan	Date 8/2/17	Time 0710	



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

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





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

September 28, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 9-20-2017

OrderNo.: 1709B22

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/21/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001A

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 1:35:29 PM	B45921
Surr: 1,2-Dichloroethane-d4	95.0	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Toluene-d8	99.7	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 1:35:29 PM	D45921
Surr: BFB	94.2	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001B

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 12:30:40 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 12:30:40 PM	34022
Surr: DNOP	132	0	79.2-146		%Rec	1	9/25/2017 12:30:40 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002A

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Methyl tert-butyl ether (MTBE)	0.54	0.24	1.0	J	µg/L	1	9/27/2017 3:01:25 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 3:01:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	98.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 3:01:25 PM	D45921
Surr: BFB	91.9	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	D45921

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: **1709B22**

Date Reported: **9/28/2017**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002B

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 1:36:57 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:36:57 PM	34022
Surr: DNOP	133	0	79.2-146		%Rec	1	9/25/2017 1:36:57 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003A

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Toluene	0.092	0.064	1.0	J	µg/L	1	9/27/2017 4:27:25 PM	B45921
Ethylbenzene	1.9	0.093	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Xylenes, Total	2.5	0.32	1.5		µg/L	1	9/27/2017 4:27:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	97.6	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Dibromofluoromethane	99.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	0.53	0.0097	0.050		mg/L	1	9/27/2017 4:27:25 PM	D45921
Surr: BFB	92.7	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003B

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.21	0.19	0.20		mg/L	1	9/25/2017 1:59:13 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:59:13 PM	34022
Surr: DNOP	136	0	79.2-146		%Rec	1	9/25/2017 1:59:13 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709B22-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457337		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	119	75.4	162			
Surr: DNOP	0.33		0.2500		133	79.2	146			

Sample ID	1709B22-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457338	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	75.4	162	4.57	20	
Surr: DNOP	0.33		0.2500		133	79.2	146	0	0	

Sample ID	LCS-34022	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457341		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.31		0.2500		123	79.2	146			

Sample ID	MB-34022	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457342		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	0.61		0.5000		122	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460191	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460192	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.0	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.4	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	1709b22-001a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460194	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.1	70	130			
Toluene	20	1.0	20.00	0	98.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130	0.597	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 Quantitative 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921						
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	96.6	70	130	1.43	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0		
Surr: Toluene-d8	10		10.00		99.7	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	D45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460211	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		93.3	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	D45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460212	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	75.9	120			
Surr: BFB	9.3		10.00		93.2	70	130			

Sample ID	1709b22-002a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	D45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460215	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	9.3		10.00		93.4	70	130			

Sample ID	1709b22-002a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	D45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460216	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	70	130	0.723	20	
Surr: BFB	9.2		10.00		91.5	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified





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

## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1709B22

RcptNo: 1

Received By: Anne Thorne

9.21.17 0710 To 9.22.17  
9/20/2017 1:11:00 PM

Anne Thorne

Completed By: Anne Thorne

9/21/2017 11:23:15 AM

Anne Thorne

Reviewed By:

Dennis Long 9/21/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			









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

November 07, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 10 31 2017

OrderNo.: 1711008

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/1/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Inlet**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:25:00 AM**Lab ID:** 1711008-001A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	11/3/2017 5:51:51 PM	G46875
Surr: BFB	91.2	70-130		%Rec	1	11/3/2017 5:51:51 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Ethylbenzene	1.5	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Toluene-d8	104	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711008

Date Reported: 11/7/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 10 31 2017  
**Lab ID:** 1711008-001B

**Client Sample ID:** GAC - Inlet  
**Collection Date:** 10/31/2017 10:25:00 AM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.30	0.20		mg/L	1	11/6/2017 4:12:51 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 4:12:51 PM	34801
Surr: DNOP	117	79.2-146		%Rec	1	11/6/2017 4:12:51 PM	34801

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

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



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002A**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/3/2017 6:21:13 PM	G46875
Surr: BFB	97.9	70-130		%Rec	1	11/3/2017 6:21:13 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Ethylbenzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Dibromofluoromethane	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Toluene-d8	103	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875

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

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



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002B**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/6/2017 5:18:57 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 5:18:57 PM	34801
Surr: DNOP	114	79.2-146		%Rec	1	11/6/2017 5:18:57 PM	34801

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496769	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.3013	105	75.4	162			
Surr: DNOP	0.26		0.2500		104	79.2	146			

Sample ID	1711008-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496770	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.3013	109	75.4	162	3.15	20	
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0	

Sample ID	LCS-34801	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496772	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	72	170			
Surr: DNOP	0.28		0.2500		112	79.2	146			

Sample ID	MB-34801	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496773	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	0.59		0.5000		118	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495601</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495604</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.8	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>1711008-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495607</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>1711008-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495608</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.7	70	130	0.504	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 Quantitative 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#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-002a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875						
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495608	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	97.8	70	130	3.60	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0		
Surr: Toluene-d8	10		10.00		102	70	130	0	0		

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495610	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.5		10.00		95.1	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495611	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	70	130			
Surr: BFB	9.7		10.00		96.6	70	130			

Sample ID	1711008-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495615	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	93.9	70	130			
Surr: BFB	9.3		10.00		93.1	70	130			

Sample ID	1711008-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	92.4	70	130	0.929	20	
Surr: BFB	9.2		10.00		92.3	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1711008

RcptNo: 1

Received By: Anne Thorne 11/1/2017 7:00:00 AM

*Anne Thorne*

Completed By: Isaiah Ortiz 11/1/2017 9:19:35 AM

*IO*

Reviewed By: *AT 11/03/17*

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			



<b>Chain-of-Custody Record</b>		Turn-Around Time:
Client: <b>Western Refining Southwest, Inc.</b>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush
		Project Name: <b>GAC - Monthly</b>
Mailing Address: <b>#50 CR 4990</b>		Date: <u>10-31-2017</u>
<b>Bloomfield, NM 87413</b>		Project #: <b>PO#12621258</b>
Phone #: <b>505-632-4166</b>		Project Manager: <b>Kelly Robinson</b>
email or Fax#: <u>Kelly.Robinson@wnr.com</u>		
QA/QC Package:		
<input type="checkbox"/> Standard	<b>X</b> Level 4 (Full Validation)	
<input type="checkbox"/> Other		
<b>X</b> EDD (Type) _____		
		Sampler: <b>Michael A. Wicker</b>
		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Sample Temperature: <u>1.6</u>

☐ Other \_\_\_\_\_

☒ EDD (Type) \_\_\_\_\_

Sample Temperature: 1.6

Container Type and #	Preservative Type	HEAL No.
5 VOA	HCl	171008
1-250-ml Amber	Cool	-001
5 VOA	HCl	-002
1-250-ml Amber	Cool	

16/2/17 1911

Received by: *John Doe* Date *11/01/17* Time *0700*

Received by: *[Signature]* Date *11/01/17* Time *0700*

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



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

## Analysis Request

☐ Other \_\_\_\_\_

☒ EDD (Type) \_\_\_\_\_

Container Type and #	Preservative Type	HEAL No.
5 VOA	HCl	171008
1-250-ml Amber	Cool	-001
5 VOA	HCl	-002
1-250-ml Amber	Cool	

16/2/17 1911

Received by: *John Doe* Date *11/01/17* Time *0700*

Received by: *Am J* Date *11/01/17* Time *0700*

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





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

December 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 11-22-2017

OrderNo.: 1711C34

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/23/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001A

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Toluene-d8	101	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001B

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	12/2/2017 3:43:20 AM	GW4747
Surr: BFB	177	69.3-150	S	%Rec	1	12/2/2017 3:43:20 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001C

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.26	0.20		mg/L	1	11/29/2017 6:40:57 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 6:40:57 PM	35199
Surr: DNOP	121	79.2-146		%Rec	1	11/29/2017 6:40:57 PM	35199

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-002A

**Client Sample ID:** GAC Lead  
**Collection Date:** 11/22/2017 12:50:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Toluene-d8	104	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/2/2017 4:06:43 AM	GW4747
Surr: BFB	88.2	69.3-150		%Rec	1	12/2/2017 4:06:43 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002C

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/29/2017 7:46:50 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 7:46:50 PM	35199
Surr: DNOP	125	79.2-146		%Rec	1	11/29/2017 7:46:50 PM	35199

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	1711C34-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513103	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.2629	108	89.6	145			
Surr: DNOP	0.27		0.2500		108	79.2	146			

Sample ID	1711C34-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513104	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.2629	106	89.6	145	1.74	20	
Surr: DNOP	0.27		0.2500		108	79.2	146	0	0	

Sample ID	LCS-35199	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513106	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	76.5	158			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	MB-35199	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513107	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	0.56		0.5000		113	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	RB-II	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516078	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		92.1	69.3	150			

Sample ID	2.5UG GRO LCS-II	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516079	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.8	75.8	123			
Surr: BFB	21		20.00		103	69.3	150			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514491	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcsb	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514492	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.9	70	130			
Toluene	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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  
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: 1711C34

RcptNo: 1

Received By: Andy Freeman

11/23/2017 8:35:00 AM

Completed By: Anne Thorne

11/28/2017 9:52:46 AM

Reviewed By: *SRP* 11/28/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

PO#12621258

Project Manager: Kelly Robinson

QA/QC Package:

**X Level 4 (Full Validation)**

☐ Other

**X EDD (Type)** \_\_\_\_\_

Sample Temperature:  $25 \pm 0.1 = 25.6^\circ\text{C}$

[illegible]

Received by: A	Date	Time
----------------	------	------

Received by: A	Date	Time
----------------	------	------

11/21/11

162512217	1528
-----------	------

Received by: \_\_\_\_\_  
Date: \_\_\_\_\_  
Time: \_\_\_\_\_

11/23/17 0835

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





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

December 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 12 13 2017

OrderNo.: 1712935

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001A

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Surr: 1,2-Dichloroethane-d4	93.7	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Dibromofluoromethane	99.1	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.026	0.0097	0.050	J	mg/L	1	12/18/2017 12:42:17 PM	R47868
Surr: BFB	103	0	70-130		%Rec	1	12/18/2017 12:42:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001B

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 7:33:30 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 7:33:30 AM	35578
Surr: DNOP	123	0	79.2-146		%Rec	1	12/20/2017 7:33:30 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002A

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Methyl tert-butyl ether (MTBE)	0.32	0.24	1.0	J	µg/L	1	12/19/2017 5:31:35 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Surr: 1,2-Dichloroethane-d4	90.4	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Dibromofluoromethane	96.3	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.034	0.0097	0.050	J	mg/L	1	12/18/2017 1:05:17 PM	R47868
Surr: BFB	99.6	0	70-130		%Rec	1	12/18/2017 1:05:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002B

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 8:39:35 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 8:39:35 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 8:39:35 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003A

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Ethylbenzene	1.3	0.093	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Xylenes, Total	1.6	0.32	1.5		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: 4-Bromofluorobenzene	87.9	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Dibromofluoromethane	93.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: AG	
Gasoline Range Organics (GRO)	0.78	0.0097	0.050		mg/L	1	12/18/2017 1:28:16 PM	R47868
Surr: BFB	94.1	0	70-130		%Rec	1	12/18/2017 1:28:16 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003B

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.31	0.19	0.20		mg/L	1	12/20/2017 9:01:37 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 9:01:37 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 9:01:37 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534630		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	111	89.6	145			
Surr: DNOP	0.29		0.2500		116	79.2	146			

Sample ID	1712935-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	35578	RunNo:	47873					
Prep Date:	12/18/2017	Analysis Date:	12/20/2017	SeqNo:	1534631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	113	89.6	145	1.58	20	
Surr: DNOP	0.29		0.2500		118	79.2	146	0	0	

Sample ID	LCS-35578		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 35578		RunNo: 47873					
Prep Date:	12/18/2017		Analysis Date: 12/20/2017		SeqNo: 1534634		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	76.5	158			
Surr: DNOP	0.30		0.2500		119	79.2	146			

Sample ID	MB-35578	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534635		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	0.47		0.5000		93.5	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533783</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533784</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.8	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID <b>1712935-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533792</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID <b>1712935-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533793</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130	2.43	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 Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903						
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533793	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	95.6	70	130	0.265	20		
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.7	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0		
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.4	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531812	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	70	130			
Surr: BFB	9.8		10.00		97.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531813	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1712935

RcptNo: 1

Received By: Anne Thorne 12/15/2017 7:30:00 AM

Completed By: Michelle Garcia 12/15/2017 11:01:06 AM

Reviewed By: SRE 12/15/17

*Anne Thorne*  
*Michelle Garcia*

### Chain of Custody

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

### Log In

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

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

17. Additional remarks:

### 18. Cooler Information

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







## Appendix B





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A84

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A84**

Date Reported: **5/3/2017**

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

**Client Sample ID:** DW-3

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 1:30:00 PM

**Lab ID:** 1704A84-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 5:31:31 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 5:31:31 PM
Surr: DNOP	118	86-162		%Rec	1	5/2/2017 5:31:31 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.099	0.050		mg/L	1	4/26/2017 3:20:08 PM
Surr: BFB	140	52.3-138	S	%Rec	1	4/26/2017 3:20:08 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.011	0.0050		mg/L	1	4/27/2017 11:43:40 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Ethylbenzene	3.2	1.0		µg/L	1	4/25/2017 3:33:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 3:33:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 3:33:00 PM
Surr: 1,2-Dichloroethane-d4	84.9	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: Dibromofluoromethane	97.2	70-130		%Rec	1	4/25/2017 3:33:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	4/25/2017 3:33:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A84**

Date Reported: **5/3/2017**

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

**Client Sample ID:** Trip Blank

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:**

**Lab ID:** 1704A84-002

**Matrix:** TRIP BLANK

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 3:56:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 3:56:00 PM
Surr: 1,2-Dichloroethane-d4	84.5	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: Dibromofluoromethane	97.3	70-130		%Rec	1	4/25/2017 3:56:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/25/2017 3:56:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332724</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332725</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

Sample ID <b>1704A84-001BMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>DW-3</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332727</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0.09920	94.1	64.8	129			
Surr: BFB	32		20.00		160	52.3	138			S

Sample ID <b>1704A84-001BMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>DW-3</b>	Batch ID: <b>G42379</b>		RunNo: <b>42379</b>							
Prep Date:	Analysis Date: <b>4/26/2017</b>		SeqNo: <b>1332728</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0.09920	92.9	64.8	129	1.06	20	
Surr: BFB	31		20.00		154	52.3	138	0	0	S

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A84

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333245		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	98.7	80	120			

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A84

RcptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 7:55:47 AM

Reviewed By:

ENM *[Signature]*

4/25/17

*[Signature]*

*[Signature]*

### 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? Cooler

### 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: 1  
( $<2$  or  $>12$  unless noted)  
Adjusted? 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: <input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



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





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A85

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A85**

Date Reported: **5/3/2017**

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

**Client Sample ID:** TP-6

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 12:55:00 PM

**Lab ID:** 1704A85-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.7	0.20		mg/L	1	5/2/2017 5:53:56 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 5:53:56 PM
Surr: DNOP	125	86-162		%Rec	1	5/2/2017 5:53:56 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.3	0.050		mg/L	1	4/26/2017 4:32:30 PM
Surr: BFB	725	52.3-138	S	%Rec	1	4/26/2017 4:32:30 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.027	0.0050		mg/L	1	4/27/2017 11:45:13 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Ethylbenzene	26	1.0		µg/L	1	4/25/2017 4:20:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 4:20:00 PM
Xylenes, Total	3.8	1.5		µg/L	1	4/25/2017 4:20:00 PM
Surr: 1,2-Dichloroethane-d4	81.0	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: Dibromofluoromethane	95.4	70-130		%Rec	1	4/25/2017 4:20:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	4/25/2017 4:20:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>MB-31497</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>31497</b>		RunNo: <b>42482</b>							
Prep Date: <b>5/1/2017</b>	Analysis Date: <b>5/2/2017</b>		SeqNo: <b>1336124</b>		Units: <b>mg/L</b>					
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	0.61		0.5000		122	86	162			

Sample ID <b>LCS-31497</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>31497</b>		RunNo: <b>42482</b>							
Prep Date: <b>5/1/2017</b>	Analysis Date: <b>5/2/2017</b>		SeqNo: <b>1336222</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	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#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A85

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A85

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin

4/25/2017 8:02:31 AM

Reviewed By:

ENM/ *[Signature]*

04/25/17

*[Signature]*  
*[Signature]*

### 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: 1  
(≤2 or >12 unless noted)  
Adjusted? 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:

### 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**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

Email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

**4-24-2017**

Project #:

**PO# 12618990**

Project Manager:

Kelly Robinson

Sampler: **Michael A Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **2-1**

Date Time Matrix Sample Request ID

**4-24-17 1255**

**H<sub>2</sub>O**

**TP-6**

**↓ ↓ ↓**

**↓**

Container Type and #

**5-VOA**

**HCl**

**1-250 mL Amber**

**Cool**

**1-500 mL**

**HNO<sub>3</sub>**

Preservative Type

**HBAL No.**

**170885**

**-001**

**-001**

**-001**

## Analysis Request

BTEX + MTBE + TMBs (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F<sup>-</sup>, Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE Only

8270 (Semi-VOA)

DRO - Ext. 8015B

Total Metals Pb only

Air Bubbles (Y or N)

Remarks:

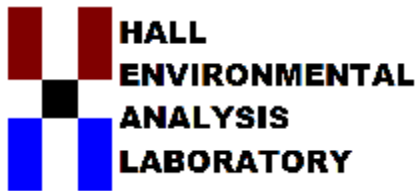
Received by: **Michael A Wicker** Date: **4/24/17** Time: **1546**

Received by: **Michael A Wicker** Date: **4/25/17** Time: **0715**

Date: **4-24-17** Time: **1546**

Date: **4/24/17** Time: **1837**





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A86

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A86**

Date Reported: **5/3/2017**

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

**Client Sample ID:** MW-49

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 12:20:00 PM

**Lab ID:** 1704A86-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 6:16:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 6:16:23 PM
Surr: DNOP	124	86-162		%Rec	1	5/2/2017 6:16:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2017 5:20:26 PM
Surr: BFB	98.8	52.3-138		%Rec	1	4/26/2017 5:20:26 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.029	0.0050		mg/L	1	4/27/2017 11:59:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 4:44:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 4:44:00 PM
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	4/25/2017 4:44:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/25/2017 4:44:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	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
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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A86

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A86

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

*[Signature]*

Completed By: Lindsay Mangin

4/25/2017 8:06:26 AM

*[Signature]*

Reviewed By:

ENM/ *[Signature]*

04/25/17

### 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 8.0°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: 1  
(2 or >12 unless noted)  
Adjusted? 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:

### 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**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

**4-24-2017**

Project #:

**PO# 12618990**

Project Manager:

Kelly Robinson

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: **21.1**

Date Time Matrix Sample Request ID

4/24/17 1220 H<sub>2</sub>O MW-49

↓ ↓ ↓ ↓ ↓

Container Type and #

5-VOA

1-250 mL Amber  
1-500 mL

Preservative Type

HCl

Cool  
HNO<sub>3</sub>

HEAL No.

**170486**

**-001**

**-001**

**-001**

## Analysis Request

BTEX + MTBE + TMBs (6021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F<sup>-</sup>, Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE Only

8270 (Semi-VOA)

DRO - Ext. 8015B

Total Metals Pb only

Air Bubbles (Y or N)

Remarks:

Received by: **Chet Wacker** Date: **4/24/17** Time: **1524**

Relinquished by: **Chet Wacker** Date: **4/24/17** Time: **1833**





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A87

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A87**Date Reported: **5/3/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** TP-5**Project:** River Terrace Low Flow 4 24 2017**Collection Date:** 4/24/2017 11:40:00 AM**Lab ID:** 1704A87-001**Matrix:** AQUEOUS**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.6	0.20		mg/L	1	5/2/2017 6:38:40 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 6:38:40 PM
Surr: DNOP	137	86-162		%Rec	1	5/2/2017 6:38:40 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	13	1.0		mg/L	20	4/26/2017 5:44:31 PM
Surr: BFB	146	52.3-138	S	%Rec	20	4/26/2017 5:44:31 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.068	0.0050		mg/L	1	4/27/2017 12:00:43 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Toluene	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Ethylbenzene	670	10		µg/L	10	4/25/2017 5:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	4/25/2017 5:07:00 PM
Xylenes, Total	3100	150		µg/L	100	4/26/2017 1:50:00 PM
Surr: 1,2-Dichloroethane-d4	81.1	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: Dibromofluoromethane	97.7	70-130		%Rec	10	4/25/2017 5:07:00 PM
Surr: Toluene-d8	104	70-130		%Rec	10	4/25/2017 5:07:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333379</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333380</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42398</b>			RunNo: <b>42398</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1335998</b>			Units: <b>%Rec</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	8.4		10.00		84.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42398</b>			RunNo: <b>42398</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1335999</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.7		10.00		86.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42398	RunNo:	42398					
Prep Date:		Analysis Date:	4/26/2017	SeqNo:	1335999	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Toluene-d8	10		10.00		104	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A87

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType: LCS		TestCode: EPA 6010B: Total Recoverable Metals					
Client ID:	LCSW		Batch ID: 31438		RunNo: 42407					
Prep Date:	4/26/2017		Analysis Date: 4/27/2017		SeqNo: 1333245		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.49	0.0050	0.5000	0	98.7	80	120			

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	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
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S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-245-3975 FAX: 505-245-4197  
Website: www.hallenvironmental.com

## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A87

ReptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 8:08:22 AM

Reviewed By:

ENM/

04/25/17

*[Signature]*

*[Signature]*

### Chain of Custody

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

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:  
Adjusted? 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:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			









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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A88

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A88**Date Reported: **5/3/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** TP-8**Project:** River Terrace Low Flow 4 24 2017**Collection Date:** 4/24/2017 11:00:00 AM**Lab ID:** 1704A88-001**Matrix:** AQUEOUS**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.3	0.20		mg/L	1	5/2/2017 7:01:19 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 7:01:19 PM
Surr: DNOP	131	86-162		%Rec	1	5/2/2017 7:01:19 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.6	0.25		mg/L	5	4/26/2017 6:08:41 PM
Surr: BFB	179	52.3-138	S	%Rec	5	4/26/2017 6:08:41 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.038	0.0050		mg/L	1	4/27/2017 12:02:15 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Toluene	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Ethylbenzene	11	5.0		µg/L	5	4/25/2017 5:31:00 PM
Methyl tert-butyl ether (MTBE)	ND	5.0		µg/L	5	4/25/2017 5:31:00 PM
Xylenes, Total	ND	7.5		µg/L	5	4/25/2017 5:31:00 PM
Surr: 1,2-Dichloroethane-d4	84.0	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: Dibromofluoromethane	97.8	70-130		%Rec	5	4/25/2017 5:31:00 PM
Surr: Toluene-d8	103	70-130		%Rec	5	4/25/2017 5:31:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	86	162			

### Qualifiers:

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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#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

### Qualifiers:

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

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333379</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>		RunNo: <b>42336</b>							
Prep Date:	Analysis Date: <b>4/25/2017</b>		SeqNo: <b>1333380</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	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
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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A88

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A88

RcptNo: 1

Received By: Lindsay Mangin 4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin 4/25/2017 8:10:40 AM

Reviewed By:

ENM/

04/25/17

*[Signature]*

*[Signature]*

### Chain of Custody

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

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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:

1  
( $<2$  or  $>12$  unless noted)

Adjusted?

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:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.1	Good	Yes			



# Chain-of-Custody Record

Client: **Western Refining**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type) \_\_\_\_\_

Project Manager:

Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.1

Date Time Matrix Sample Request ID

4-24-17 1100 H<sub>2</sub>O TP-8

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Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

4-24-2017

Project #:

**PO# 12618990**

4901 Hawkins NE - Albuquerque, NM 87109

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

www.hallenvironmental.com



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

### Analysis Request

BTEX + MTBE + TMBs (6021)		BTEX + MTBE + TPH (Gas only)		TPH 8015B (GRO / DRO / MRO)		TPH (Method 418.1)		EDB (Method 504.1)		PAH (8310 or 8270SIMS)		RCRA 8 Metals		Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )		8081 Pesticides / 8082 PCB's		8260B (VOA) BTEX, MTBE Only	X	8270 (Semi-VOA)		DRO - Ext. 8015B		Total Metals Pb only		Air Bubbles (Y or N)	
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Remarks:

Date:	Time:	Relinquished by:	Received by:	Date:	Time:
4-24-17	1540	<i>[Signature]</i>	<i>[Signature]</i>	4/24/17	1540
Date:	Time:	Relinquished by:	Received by:	Date:	Time:
4/24/17	1833	<i>[Signature]</i>	<i>[Signature]</i>	4/25/17	0915

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





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

May 03, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace Low Flow 4 24 2017

OrderNo.: 1704A89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 4/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704A89**

Date Reported: **5/3/2017**

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

**Client Sample ID:** TP-9

**Project:** River Terrace Low Flow 4 24 2017

**Collection Date:** 4/24/2017 10:25:00 AM

**Lab ID:** 1704A89-001

**Matrix:** AQUEOUS

**Received Date:** 4/25/2017 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/2/2017 7:23:41 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/2/2017 7:23:41 PM
Surr: DNOP	123	86-162		%Rec	1	5/2/2017 7:23:41 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	4/26/2017 6:32:52 PM
Surr: BFB	133	52.3-138		%Rec	1	4/26/2017 6:32:52 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>MED</b>
Lead	0.017	0.0050		mg/L	1	4/27/2017 12:03:51 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Toluene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/25/2017 5:54:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/25/2017 5:54:00 PM
Surr: 1,2-Dichloroethane-d4	81.6	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: Dibromofluoromethane	95.6	70-130		%Rec	1	4/25/2017 5:54:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	4/25/2017 5:54:00 PM

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

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## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31497		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336124		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	0.61		0.5000		122	86	162			

Sample ID	LCS-31497		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31497		RunNo: 42482					
Prep Date:	5/1/2017		Analysis Date: 5/2/2017		SeqNo: 1336222		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	72	170			
Surr: DNOP	0.26		0.2500		105	86	162			

### Qualifiers:

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>RB</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>PBW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332724</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8015D: Gasoline Range</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>G42379</b>			RunNo: <b>42379</b>						
Prep Date:	Analysis Date: <b>4/26/2017</b>			SeqNo: <b>1332725</b>		Units: <b>mg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	98.7	79.1	123			
Surr: BFB	23		20.00		116	52.3	138			

### Qualifiers:

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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>PBW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333379</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.5		10.00		84.8	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>			TestCode: <b>EPA Method 8260: Volatiles Short List</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>SL42336</b>			RunNo: <b>42336</b>						
Prep Date:	Analysis Date: <b>4/25/2017</b>			SeqNo: <b>1333380</b>		Units: <b>µg/L</b>				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.7	70	130			
Toluene	21	1.0	20.00	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	8.5		10.00		85.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.3	70	130			
Surr: Toluene-d8	10		10.00		105	70	130			

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704A89

03-May-17

**Client:** Western Refining Southwest, Inc.  
**Project:** River Terrace Low Flow 4 24 2017

Sample ID	MB-31438		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	PBW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333244		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	ND	0.0050									

Sample ID	LCS-31438		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSW		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333245		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.49	0.0050	0.5000	0	98.7	80	120				

Sample ID	LCSD-31438		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	LCSS02		Batch ID:	31438		RunNo:	42407				
Prep Date:	4/26/2017		Analysis Date:	4/27/2017		SeqNo:	1333246		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Lead	0.50	0.0050	0.5000	0	99.2	80	120	0.449	20		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704A89

RcptNo: 1

Received By: Lindsay Mangin

4/25/2017 7:15:00 AM

Completed By: Lindsay Mangin

4/25/2017 8:13:23 AM

Reviewed By:

ENM/ *[Signature]*

04/25/17

*[Signature]*

*[Signature]*

### 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 04/25/17**
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:

**1**  
(2 or >12 unless noted)

Adjusted? **YES**

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: **Added 1mL HNO<sub>3</sub> to -001D for acceptable pH. Held for 24hrs. prior to analysis. -ENM 04/25/17 0900**

### 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**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace- Low Flow**

Project #:

**PO# 12618990**

Project Manager:

Kelly Robinson

Sampler: **Michael A Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **24**

Date Time Matrix Sample Request ID

4-24-17 1025

H<sub>2</sub>O

TP-9

↓ ↓ ↓

↓ ↓ ↓

↓ ↓ ↓

Container Type and #

5-VOA

HCl

1-250 mL Amber

Cool

1-500 mL

HNO<sub>3</sub>

Preservative Type

HEAL No. 1704A89

## Analysis Request

BTEX + MTBE + TMBs (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (6310 or 8270SIMS)

RCRA 8 Metals

Anions (F<sup>-</sup>, Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE Only

8270 (Semi-VOA)

DRO - Ext. 8015B

Total Metals Pb only

Air Bubbles (Y or N)

Remarks:

Received by: *[Signature]* Date: 4/24/17 Time: 1540

Received by: *[Signature]* Date: 4/25/17 Time: 0715

Date: 4-24-17 Time: 1540

Date: 4-24-17 Time: 1833



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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





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

January 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 1-4-2017

OrderNo.: 1701161

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:10:00 PM

**Lab ID:** 1701161-001

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	1/11/2017 12:25:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 12:25:23 PM
Surr: DNOP	126	67.9-149		%Rec	1	1/11/2017 12:25:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/10/2017 11:22:10 AM
Surr: BFB	79.7	66.4-120		%Rec	1	1/10/2017 11:22:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Ethylbenzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Xylenes, Total	ND	1.5		µg/L	1	1/9/2017 1:30:08 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: 4-Bromofluorobenzene	84.1	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Toluene-d8	90.8	70-130		%Rec	1	1/9/2017 1:30:08 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:20:00 PM

**Lab ID:** 1701161-002

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	0.84	0.20		mg/L	1	1/11/2017 1:30:12 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 1:30:12 PM
Surr: DNOP	130	67.9-149		%Rec	1	1/11/2017 1:30:12 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	2.8	0.50		mg/L	10	1/10/2017 11:46:41 AM
Surr: BFB	103	66.4-120		%Rec	10	1/10/2017 11:46:41 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: DJF
Benzene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Ethylbenzene	170	10		µg/L	10	1/9/2017 9:17:10 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Xylenes, Total	680	15		µg/L	10	1/9/2017 9:17:10 PM
Surr: 1,2-Dichloroethane-d4	75.1	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Dibromofluoromethane	79.7	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Toluene-d8	93.9	70-130		%Rec	1	1/9/2017 1:59:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	MB-29629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252027		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	0.62		0.5000		123	67.9	149			

Sample ID	1701161-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252070		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	115	75.4	162			
Surr: DNOP	0.28		0.2500		112	67.9	149			

Sample ID	LCS-29629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252071		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	72	170			
Surr: DNOP	0.28		0.2500		111	67.9	149			

Sample ID	1701161-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252199		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.07	20	
Surr: DNOP	0.28		0.2500		112	67.9	149	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
R RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251625	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	15		20.00		76.6	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	79.1	123			
Surr: BFB	18		20.00		89.0	66.4	120			

Sample ID	1701161-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251632	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.6	0.50	5.000	2.830	94.8	64.8	129			
Surr: BFB	210		200.0		105	66.4	120			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250952	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130			
Surr: Toluene-d8	8.9		10.00		88.9	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1701161

RcptNo: 1

Received by/date:

*R-m*

*01/05/17*

Logged By: Ashley Gallegos

1/5/2017 7:25:00 AM

*Ag*

Completed By: Ashley Gallegos

1/5/2017 12:25:32 PM

*Ag*

Reviewed By:

*[Signature]*

*01/05/17*

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

# of preserved  
bottles checked  
for pH:  
( $<2$  or  $>12$  unless noted)  
Adjusted?  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			



<b>Chain-of-Custody Record</b>		Turn-Around Time:
Client: <b>Western Refining</b>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush
		Project Name: <b>GAC - Lead</b>
Mailing Address: <b>#50 CR 4990</b>		Date: <u>1-4-2017</u>
<b>Bloomfield, NM 87413</b>		Project #:
Phone #: <b>505-632-4135</b>		PO#12615519
email or Fax#:		Project Manager:
QA/QC Package:		
<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Level 4 (Full Validation)	
<input type="checkbox"/> Other _____		
<input checked="" type="checkbox"/> EDD (Type) _____		
		Sampler: <u>Michael A Wicker</u>
		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Sample Temperature: <u>2.2</u>

☒ Standard      ☐ Rush

Date: 1 - 4 - 2017

Project #:

PO#12615519





**Project Manager:**

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 7.2

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-4-17	1530			1/4/17	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time
1/4/17	1830			01/05/17	0725

Remarks:

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





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

February 27, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 2-15-2017

OrderNo.: 1702729

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/16/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:20:00 AM

**Lab ID:** 1702729-001

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	2/21/2017 2:43:43 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 2:43:43 PM	30313
Surr: DNOP	129	86-162		%Rec	1	2/21/2017 2:43:43 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2017 12:15:40 PM	G40920
Surr: BFB	87.1	52.3-138		%Rec	1	2/22/2017 12:15:40 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Toluene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Ethylbenzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Xylenes, Total	ND	1.5		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Dibromofluoromethane	109	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Toluene-d8	99.0	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:30:00 AM

**Lab ID:** 1702729-002

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	2/21/2017 4:09:02 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 4:09:02 PM	30313
Surr: DNOP	114	86-162		%Rec	1	2/21/2017 4:09:02 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.50		mg/L	10	2/22/2017 12:39:07 PM	G40920
Surr: BFB	109	52.3-138		%Rec	10	2/22/2017 12:39:07 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Toluene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Ethylbenzene	180	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Xylenes, Total	700	7.5	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	96.4	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: 4-Bromofluorobenzene	107	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Dibromofluoromethane	104	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Toluene-d8	102	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	<b>LCS-30313</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>LCSW</b>		Batch ID: <b>30313</b>		RunNo: <b>40870</b>					
Prep Date:	<b>2/21/2017</b>		Analysis Date: <b>2/21/2017</b>		SeqNo: <b>1280625</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	137	72	170			
Surr: DNOP	0.30		0.2500		121	86	162			

Sample ID	<b>MB-30313</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>PBW</b>		Batch ID: <b>30313</b>		RunNo: <b>40870</b>					
Prep Date:	<b>2/21/2017</b>		Analysis Date: <b>2/21/2017</b>		SeqNo: <b>1280626</b>		Units: <b>mg/L</b>			
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	0.55		0.5000		110	86	162			

Sample ID	<b>1702729-001CMS</b>		SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>GAC Lead</b>		Batch ID: <b>30313</b>		RunNo: <b>40870</b>					
Prep Date:	<b>2/21/2017</b>		Analysis Date: <b>2/21/2017</b>		SeqNo: <b>1280821</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	133	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	<b>1702729-001CMSD</b>		SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>					
Client ID:	<b>GAC Lead</b>		Batch ID: <b>30313</b>		RunNo: <b>40870</b>					
Prep Date:	<b>2/21/2017</b>		Analysis Date: <b>2/21/2017</b>		SeqNo: <b>1280822</b>		Units: <b>mg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	130	75.4	162	2.28	20	
Surr: DNOP	0.29		0.2500		115	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281743	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	17		20.00		86.8	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281744	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	79.1	123			
Surr: BFB	19		20.00		94.5	52.3	138			

Sample ID	1702729-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281750	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.9	0.50	5.000	3.902	100	64.8	129			
Surr: BFB	230		200.0		117	52.3	138			

Sample ID	1702729-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281751	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.2	0.50	5.000	3.902	85.2	64.8	129	8.90	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279940	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	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279941	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1702729

RcptNo: 1

Received by/date: AT 02/16/17

Logged By: Anne Thorne 2/16/2017 7:10:00 AM

Completed By: Anne Thorne 2/16/2017 9:41:17 AM

Reviewed By: mg 02/17/17

*Anne Thorne*  
*Anne Thorne*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			









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

March 15, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 3-8-2017

OrderNo.: 1703440

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/9/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lead

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:30:00 AM

**Lab ID:** 1703440-001

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 1:09:38 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 1:09:38 PM
Surr: DNOP	110	86-162		%Rec	1	3/13/2017 1:09:38 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 4:11:42 PM
Surr: BFB	87.1	52.3-138		%Rec	1	3/9/2017 4:11:42 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	3/9/2017 2:23:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 2:23:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Toluene-d8	96.4	70-130		%Rec	1	3/9/2017 2:23:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:35:00 AM

**Lab ID:** 1703440-002

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	0.67	0.20		mg/L	1	3/13/2017 2:33:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 2:33:50 PM
Surr: DNOP	105	86-162		%Rec	1	3/13/2017 2:33:50 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2.6	0.50		mg/L	10	3/9/2017 4:35:02 PM
Surr: BFB	108	52.3-138		%Rec	10	3/9/2017 4:35:02 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Ethylbenzene	80	1.0		µg/L	1	3/9/2017 2:47:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Xylenes, Total	230	15		µg/L	10	3/10/2017 11:25:00 AM
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/9/2017 2:47:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1703440**Date Reported: **3/15/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC-Lag**Project:** River Terrace GAC 3-8-2017**Collection Date:** 3/8/2017 11:25:00 AM**Lab ID:** 1703440-003**Matrix:** AQUEOUS**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 3:02:45 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 3:02:45 PM
Surr: DNOP	94.5	86-162		%Rec	1	3/13/2017 3:02:45 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 6:08:16 PM
Surr: BFB	87.4	52.3-138		%Rec	1	3/9/2017 6:08:16 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 3:10:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	3/9/2017 3:10:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	MB-30629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1294967		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	0.48		0.5000		95.8	86	162			

Sample ID	LCS-30629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295010		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	95.8	72	170			
Surr: DNOP	0.23		0.2500		90.4	86	162			

Sample ID	1703440-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295012		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		110	86	162			

Sample ID	1703440-001CMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295043		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	3.23	20	
Surr: DNOP	0.26		0.2500		105	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293384	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	17		20.00		87.2	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293385	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	79.1	123			
Surr: BFB	19		20.00		94.4	52.3	138			

Sample ID	1703440-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.3	0.50	5.000	2.586	93.8	64.8	129			
Surr: BFB	230		200.0		115	52.3	138			

Sample ID	1703440-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293389	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.0	0.50	5.000	2.586	88.0	64.8	129	4.09	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID: SL41260			RunNo: 41260					
Prep Date:		Analysis Date: 3/9/2017			SeqNo: 1294312		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Ethylbenzene	20	1.0	20.00	0	100	70	130			
Methyl tert-butyl ether (MTBE)	39	1.0	40.00	0	96.8	70	130			
Xylenes, Total	60	1.5	60.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: SL41260			RunNo: 41260					
Prep Date:		Analysis Date: 3/9/2017			SeqNo: 1294316		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294831	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: SL41285			RunNo: 41285					
Prep Date:		Analysis Date: 3/10/2017			SeqNo: 1294832		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

### Qualifiers:

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1703440

RcptNo: 1

Received by/date:	AT	03/09/17
Logged By:	Lindsay Mangin	3/9/2017 7:10:00 AM
Completed By:	Lindsay Mangin	3/9/2017 8:30:10 AM
Reviewed By:	WS	03/09/17

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

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

## Special Handling (if applicable)

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

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



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

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 3-8-2017

Project #:

PO#12618990

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

Date:	Time:	Relinquished by:
-------	-------	------------------

3-8-17 1545

Relinquished by: \_\_\_\_\_

Received by:	Date	Time
--------------	------	------

Monte Carlo

Date	Time
------	------

3) 8) 17 1545

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

Remarks:

Date:	Time:
-------	-------

Christian Walker

03/09/17 0710

109117 0710

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





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

April 19, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 4 12 2017

OrderNo.: 1704550

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/13/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

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

**Client Sample ID:** GAC Lead

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:45:00 AM

**Lab ID:** 1704550-001

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/18/2017 1:07:14 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 1:07:14 AM
Surr: DNOP	100	86-162		%Rec	1	4/18/2017 1:07:14 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/17/2017 6:15:37 PM
Surr: BFB	94.3	52.3-138		%Rec	1	4/17/2017 6:15:37 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2017 5:43:00 PM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/14/2017 5:43:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1704550**

Date Reported: **4/19/2017**

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

**Client Sample ID:** GAC Inlet

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:50:00 AM

**Lab ID:** 1704550-002

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.64	0.20		mg/L	1	4/18/2017 2:31:30 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 2:31:30 AM
Surr: DNOP	105	86-162		%Rec	1	4/18/2017 2:31:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.25		mg/L	5	4/17/2017 6:39:00 PM
Surr: BFB	137	52.3-138		%Rec	5	4/17/2017 6:39:00 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Ethylbenzene	160	10		µg/L	10	4/14/2017 6:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Xylenes, Total	720	15		µg/L	10	4/14/2017 6:07:00 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/14/2017 6:31:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	1704550-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324843		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	75.4	162			
Surr: DNOP	0.26		0.2500		104	86	162			

Sample ID	1704550-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID:	31252	RunNo:	42147					
Prep Date:	4/14/2017	Analysis Date:	4/18/2017	SeqNo:	1324844	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	75.4	162	3.18	20	
Surr: DNOP	0.26		0.2500		102	86	162	0	0	

Sample ID	LCS-31252		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31252		RunNo: 42147					
Prep Date:	4/14/2017		Analysis Date: 4/18/2017		SeqNo: 1324846		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	98.4	72	170			
Surr: DNOP	0.25		0.2500		98.2	86	162			

Sample ID	MB-31252	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324847		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	0.49		0.5000		98.4	86	162			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID <b>B30</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324697</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		93.3	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324698</b>		Units: <b>mg/L</b>					
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	20		20.00		101	52.3	138			

Sample ID <b>1704550-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324701</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.2	0.25	2.500	3.938	88.8	64.8	129			
Surr: BFB	140		100.0		145	52.3	138			S

Sample ID <b>1704550-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324702</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.0	0.25	2.500	3.938	82.2	64.8	129	2.75	20	
Surr: BFB	140		100.0		143	52.3	138	0	0	S

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324421	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.9		10.00		89.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324422	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified





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: 1704550

RcptNo: 1

Received By: Anne Thorne 4/13/2017 7:52:00 AM

Completed By: Ashley Gallegos 4/13/2017 8:46:41 AM

Reviewed By: *822 04/13/17*

*Anne Thorne*  
*Ashley Gallegos*

### Chain of Custody

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

### Log In

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

# of preserved  
bottles checked  
for pH:

( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

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



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ RushProject Name: **River Terrace - GAC**

Date: 4-12-2017

Project #:

PO#12618990



Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

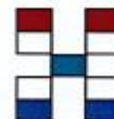
On Ice: ☒ Yes ☐ No

Sample Temperature:	1.0
---------------------	-----

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-12-17	1313			4/12/17	1313

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/12/17	1847	M. Walt	[Signature]	04/13/17	0752



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

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





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

June 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace - GAC 05/24/17

OrderNo.: 1705C89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Lead

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:25:00 AM

**Lab ID:** 1705C89-001

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 2:30:54 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 2:30:54 PM
Surr: DNOP	113	86-162		%Rec	1	5/30/2017 2:30:54 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Toluene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Ethylbenzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Xylenes, Total	ND	1.5		µg/L	1	5/25/2017 7:06:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	5/25/2017 7:06:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/31/2017 5:25:16 PM
Surr: BFB	99.5	70-130		%Rec	1	5/31/2017 5:25:16 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

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

**Client Sample ID:** GAC - Inlet

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:30:00 AM

**Lab ID:** 1705C89-002

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 3:37:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 3:37:33 PM
Surr: DNOP	97.0	86-162		%Rec	1	5/30/2017 3:37:33 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Toluene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Ethylbenzene	1.2	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Xylenes, Total	35	1.5	D	µg/L	2	5/25/2017 7:30:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: 4-Bromofluorobenzene	105	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Dibromofluoromethane	106	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Toluene-d8	103	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	0.55	0.10	D	mg/L	2	5/31/2017 6:50:50 PM
Surr: BFB	103	70-130	D	%Rec	2	5/31/2017 6:50:50 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	1705C89-001CMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357826		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.4	75.4	162			
Surr: DNOP	0.25		0.2500		101	86	162			

Sample ID	LCS-32012	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357829		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	92.7	72	170			
Surr: DNOP	0.26		0.2500		103	86	162			

Sample ID	MB-32012	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32012			RunNo: 43123					
Prep Date:	5/30/2017	Analysis Date: 5/30/2017			SeqNo: 1357830		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		99.5	86	162			

Sample ID	1705C89-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID:	32012	RunNo:	43153					
Prep Date:	5/30/2017	Analysis Date:	5/31/2017	SeqNo:	1358343	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	97.6	75.4	162	4.40	20	
Surr: DNOP	0.25		0.2500		101	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID: SL43095			RunNo: 43095					
Prep Date:	Analysis Date: 5/25/2017			SeqNo: 1356263		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.8	70	130			
Toluene	20	1.0	20.00	0	98.7	70	130			
Ethylbenzene	20	1.0	20.00	0	99.7	70	130			
Methyl tert-butyl ether (MTBE)	33	1.0	40.00	0	82.2	70	130			
Xylenes, Total	59	1.5	60.00	0	98.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: SL43095			RunNo: 43095					
Prep Date:		Analysis Date: 5/25/2017			SeqNo: 1356266		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

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

**Project:** River Terrace - GAC 05/24/17

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359084	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	107	75.9	120			
Surr: BFB	10		10.00		102	70	130			

Sample ID	1705c89-001a ms g	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	10		10.00		101	70	130			

Sample ID	1705c89-001a msd g	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359095	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	112	70	130	0.394	20	
Surr: BFB	10		10.00		99.9	70	130	0	0	

Sample ID	rb1	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1360778	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		100	70	130			

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1705C89

RcptNo: 1

Received By: Anne Thorne 5/25/2017 7:10:00 AM

*Anne Thorne*

Completed By: Andy Jansson 5/25/2017 8:44:02 AM

*Andy Jansson*

Reviewed By: ENM 05/25/17

### 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:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

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**

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: **5/24/2017**

Project #:

**PO#12618990**

Project Manager:

Kelly Robinson

Sampler:

Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: **10°**

Date Time Matrix Sample Request ID

5/24/2017 **1025**

H<sub>2</sub>O

GAC - Lead

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **↓**

H<sub>2</sub>O

GAC - Lead

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1030**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **↓**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

1-500-ml Amber

Cool

5/24/2017 **1804**

H<sub>2</sub>O

GAC - Inlet

5 VOA

HCl

HEAL No. **1705689**

Preservative Type

5 VOA

1-500-ml Amber

Cool

5/24/2017 **18**





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

June 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC 6 14 2017

OrderNo.: 1706900

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lag

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:10:00 AM

**Lab ID:** 1706900-001

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 1:37:04 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 1:37:04 PM
Surr: DNOP	114	86-162		%Rec	1	6/20/2017 1:37:04 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:07:27 AM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:07:27 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:07:27 AM
Surr: BFB	91.0	70-130		%Rec	1	6/19/2017 11:07:27 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Lead

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:20:00 AM

**Lab ID:** 1706900-002

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 2:43:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 2:43:50 PM
Surr: DNOP	122	86-162		%Rec	1	6/20/2017 2:43:50 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:36:52 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:36:52 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:36:52 AM
Surr: BFB	89.1	70-130		%Rec	1	6/19/2017 11:36:52 AM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

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

**Client Sample ID:** Inlet

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:30:00 AM

**Lab ID:** 1706900-003

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.32	0.20		mg/L	1	6/20/2017 3:06:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 3:06:09 PM
Surr: DNOP	126	86-162		%Rec	1	6/20/2017 3:06:09 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Toluene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Ethylbenzene	3.3	1.0		µg/L	1	6/19/2017 12:06:22 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Xylenes, Total	14	1.5		µg/L	1	6/19/2017 12:06:22 PM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: 4-Bromofluorobenzene	87.7	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Toluene-d8	101	70-130		%Rec	1	6/19/2017 12:06:22 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	0.57	0.050		mg/L	1	6/19/2017 12:06:22 PM
Surr: BFB	84.5	70-130		%Rec	1	6/19/2017 12:06:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	MB-32361		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1374970		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	0.59		0.5000		118	86	162			

Sample ID	1706900-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375177		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1706900-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375178		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162	3.79	20	
Surr: DNOP	0.31		0.2500		124	86	162	0	0	

Sample ID	LCS-32361		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.29		0.2500		114	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
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW		Batch ID: R43623		RunNo: 43623					
Prep Date:			Analysis Date: 6/19/2017		SeqNo: 1374233		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		113	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	12		10.00		119	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R43623			RunNo: 43623					
Prep Date:		Analysis Date: 6/19/2017			SeqNo: 1374234		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Sample ID	1706900-001ams		SampType: MS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	Lag		Batch ID: R43623		RunNo: 43623					
Prep Date:			Analysis Date: 6/19/2017		SeqNo: 1374236		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	118	70	130			
Toluene	18	1.0	20.00	0	88.9	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	12		10.00		118	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Sample ID	1706900-001amsd		SampType:	MSD		TestCode:	EPA Method 8260: Volatiles Short List				
Client ID:	Lag		Batch ID:	R43623		RunNo:	43623				
Prep Date:			Analysis Date:	6/19/2017		SeqNo:	1374237	Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	23	1.0	20.00	0	114	70	130	3.77	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 Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	1706900-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623						
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374237	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	18	1.0	20.00	0	90.0	70	130	1.26	20		
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130	0	0		
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0		
Surr: Dibromofluoromethane	11		10.00		110	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.3	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374219	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	75.9	120			
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	1706900-002ams	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374223	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0.03220	91.8	70	130			
Surr: BFB	8.9		10.00		89.0	70	130			

Sample ID	1706900-002amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0.03220	84.2	70	130	7.96	20	
Surr: BFB	8.9		10.00		88.8	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1706900**

RcptNo: **1**

Received By: **Sophia Campuzano**

6/15/2017 9:00:00 AM

Completed By: **Ashley Gallegos**

6/15/2017 2:40:06 PM

Reviewed By: **ENN**
**06/16/17**
*Sophia Campuzano*
*Ashley Gallegos*

## 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: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

## 18. Cooler Information

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



Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

**X Level 4 (Full Validation)**

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC**

6/14/2017

Project #:

PO#12618990

Project Manager:

Kelly Robinson

**Sampler:** Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3

[illegible]

Date:	Time:
-------	-------

Relinquished by:

Received by:

Date	Time
------	------

Remarks:	
----------	--

Date: \_\_\_\_\_ Time: \_\_\_\_\_

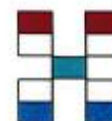
Relinquished by:

Received by:

Date \_\_\_\_\_ Time \_\_\_\_\_

1

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

[www.hallenvironmental.com](http://www.hallenvironmental.com)

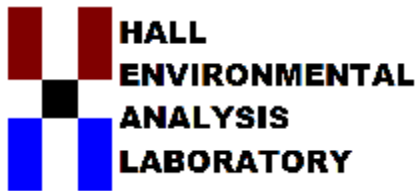
4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707610

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707610  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707610**

Date Reported: **7/26/2017**

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:30:00 AM

**Lab ID:** 1707610-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.89	0.20		mg/L	1	7/24/2017 2:15:26 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 2:15:26 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 2:15:26 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.8	0.050	P	mg/L	1	7/14/2017 2:22:22 PM	G44219
Surr: BFB	352	52.3-138	SP	%Rec	1	7/14/2017 2:22:22 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Ethylbenzene	20	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Xylenes, Total	26	1.5	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: 4-Bromofluorobenzene	91.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Dibromofluoromethane	99.1	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Toluene-d8	107	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	1707610-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Inlet	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404671		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.9	0.20	2.500	0.8940	119	75.4	162			
Surr: DNOP	0.29		0.2500		116	86	162			

Sample ID	LCS-32852	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404673		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	0.59		0.5000		118	86	162			

Sample ID	1707610-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC-Inlet	Batch ID:	32852	RunNo:	44411					
Prep Date:	7/18/2017	Analysis Date:	7/24/2017	SeqNo:	1404774	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	0.8940	126	75.4	162	4.55	20	
Surr: DNOP	0.30		0.2500		120	86	162	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	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
PQL Practical Quantitative 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1707610**

RcptNo: **1**

Received By: **Anne Thorne**

7/13/2017 7:10:00 AM



Completed By: **Ashley Gallegos**

7/13/2017 10:02:10 AM



Reviewed By: 

7/14/17

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



Turn-Around Time:

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

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Mailing Address: #50 CR 4990

Date: 7-12-2017

Bloomfield, NM 87413

Project #:

Phone #: **505-632-4166**

PO#12621258

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

Project Manager: Kelly Robinson

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other


**X** EDD (Type) \_\_\_\_\_

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature:  $3.5 - (F - 1.0) = 2.5$

[illegible]

Date:	Time:	Relinquished by:
7-12-17	1540	

Received by:	Date	Time
<i>[Signature]</i>	7/12/17	1540

Remarks:
----------

Date:	Time:	Relinquished by:
7/12/17	1804	[Signature]

Received by:  Date: 07/13/17 Time: 07:00

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





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

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707611

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





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

## Case Narrative

WO#: 1707611  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1707611

Date Reported: 7/26/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:20:00 AM

**Lab ID:** 1707611-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	7/24/2017 3:22:12 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 3:22:12 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 3:22:12 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	7/14/2017 2:46:03 PM	G44219
Surr: BFB	85.0	52.3-138	P	%Rec	1	7/14/2017 2:46:03 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Ethylbenzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Xylenes, Total	ND	1.5	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.7	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: 4-Bromofluorobenzene	93.4	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Dibromofluoromethane	98.2	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Toluene-d8	106	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	LCS-32852		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404673		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	0.59		0.5000		118	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
PQL	Practical Quantitative 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	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
PQL Practical Quantitative 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1707611

RcptNo: 1

Received By: Anne Thorne

7/13/2017 7:10:00 AM

Completed By: Ashley Gallegos

7/13/2017 10:05:33 AM

Reviewed By:

7/14/17



## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



# Chain-of-Custody Record

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

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: **Kelly.Robinson@wnr.com**

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **7-12-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **3.5 - 6.6 = 2.5**

Date Time Matrix Sample Request ID

7-12-17

1120

H<sub>2</sub>O

GAC - Lead

↓

↓

H<sub>2</sub>O

GAC - Lead

Date:

7-12-17

Time:

1540

Relinquished by:

*[Signature]*

Date:

7/12/17

Time:

1804

Relinquished by:

*[Signature]*

Received by:

*[Signature]*

Date

7/12/17

Time

1540

Received by:

*[Signature]*

Date

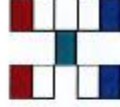
7/13/17

Time

0710

Remarks:

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



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

**Analysis Request**

BTEX + MTBE + TMBs (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)

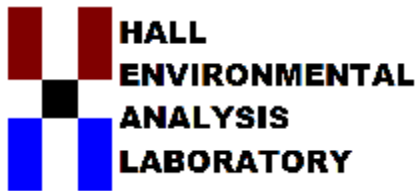
8081 Pesticides / 8082 PCBs

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

Air Bubbles (Y or N)





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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708345

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708345

Date Reported: 8/18/2017

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: GAC Lead

Project: GAC Monthly 8 2 2017

Collection Date: 8/2/2017 10:30:00 AM

Lab ID: 1708345-001

Matrix: AQUEOUS

Received Date: 8/3/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/8/2017 1:58:00 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 1:58:00 PM	33233
Surr: DNOP	115	79.2-146		%Rec	1	8/8/2017 1:58:00 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	8/11/2017 12:28:41 PM	G44930
Surr: BFB	94.0	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Toluene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Ethylbenzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Xylenes, Total	ND	1.5	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Surr: 1,2-Dichloroethane-d4	116	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: 4-Bromofluorobenzene	93.1	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Dibromofluoromethane	109	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Toluene-d8	104	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range						
Client ID:	PBW	Batch ID: 33233		RunNo: 44776						
Prep Date:	8/8/2017	Analysis Date: 8/8/2017		SeqNo: 1416042		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	0.55		0.5000		110	79.2	146			

Sample ID	1708345-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1417171		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	1708345-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC Lead		Batch ID:	33233		RunNo:	44776				
Prep Date:	8/8/2017		Analysis Date:	8/8/2017		SeqNo:	1417172		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.70	20		
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421330	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421331	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050									
Surr: BFB	9.2		10.00		92.2	70	130				

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120				
Surr: BFB	9.6		10.00		95.7	70	130				

Sample ID	1708345-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421055	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130				P
Surr: BFB	9.3		10.00		93.3	70	130				P

Sample ID	1708345-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range						
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421056	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	70	130	1.43	20		P
Surr: BFB	9.5		10.00		94.9	70	130	0	0		P

### Qualifiers:

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



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708345

RcptNo: 1

Received By: Anne Thorne

8/3/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:26:38 PM

Reviewed By: ENM/ag

08/07/2017

*Anne Thorne*  
*AG*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



# Chain-of-Custody Record

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

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **8-2-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **1.1**

Container Type and #

Preservative Type

HEAL No.

**1708345**

**-001**

**-001**

5 VOA

1-250-ml Amber

HCl

Cool

Sample Request ID

GAC - Lead

GAC - Lead

Matrix

H<sub>2</sub>O

H<sub>2</sub>O

Date

**8-2-17**

**↓**

Time

**1030**

**↓**

Remarks:

Received by: **Christa Woods**

Date: **8/2/17**

Time: **1445**

Relinquished by: **Christa Woods**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christa Woods**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christa Woods**

Date: **8/2/17**

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Date: **8/2/17**

Time: **1804**

Relinquished by: **Christa Woods**

Date: **8/2/17**

Time: **1804**

Relinquished by: **Christa Woods**

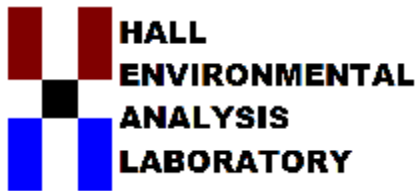
Date: **8/2/17**

Time: **1804**

Relinquished by: **Christa Woods**

Date: **8/2/17**





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

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708346

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/4/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708346

Date Reported: 8/18/2017

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

**Client Sample ID:** GAC Inlet

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:40:00 AM

**Lab ID:** 1708346-001

**Matrix:** AQUEOUS

**Received Date:** 8/4/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.59	0.20		mg/L	1	8/8/2017 3:04:47 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 3:04:47 PM	33233
Surr: DNOP	114	79.2-146		%Rec	1	8/8/2017 3:04:47 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	1.7	0.050		mg/L	1	8/11/2017 12:57:39 PM	G44930
Surr: BFB	97.5	70-130		%Rec	1	8/11/2017 12:57:39 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Toluene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Ethylbenzene	42	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Xylenes, Total	24	1.5		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Toluene-d8	104	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416042		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	0.55		0.5000		110	79.2	146			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421330</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421331</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID <b>1708346-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421334</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID <b>1708346-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421335</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	7.15	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	1708346-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC Inlet	Batch ID:	SL44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421335	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	98.0	70	130	3.72	20		
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.1		10.00		90.6	70	130	0	0		
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130	0	0		
Surr: Toluene-d8	11		10.00		107	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.2		10.00		92.2	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120			
Surr: BFB	9.6		10.00		95.7	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708346

RcptNo: 1

Received By: Anne Thorne

8/4/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:31:44 PM

Reviewed By:

ENM/ag

08/04/17

*Anne Thorne*  
*AG*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



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

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: **505-632-4166**

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

**X** Level 4 (Full Validation)

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: 8 - 2 - 2017

Project #:


PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 16

Date: 8/2/17	Time: 1445	Relinquished by: 	Received by: Christ Waeter	Date 8/2/17	Time 1445	Remarks:
Date: 8/2/17	Time: 1804	Relinquished by: Christ Waeter	Received by: Alan	Date 8/2/17	Time 0710	



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

[illegible]

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





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

September 28, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 9-20-2017

OrderNo.: 1709B22

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/21/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001A

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 1:35:29 PM	B45921
Surr: 1,2-Dichloroethane-d4	95.0	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Toluene-d8	99.7	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 1:35:29 PM	D45921
Surr: BFB	94.2	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001B

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 12:30:40 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 12:30:40 PM	34022
Surr: DNOP	132	0	79.2-146		%Rec	1	9/25/2017 12:30:40 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002A

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Methyl tert-butyl ether (MTBE)	0.54	0.24	1.0	J	µg/L	1	9/27/2017 3:01:25 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 3:01:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	98.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 3:01:25 PM	D45921
Surr: BFB	91.9	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002B

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 1:36:57 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:36:57 PM	34022
Surr: DNOP	133	0	79.2-146		%Rec	1	9/25/2017 1:36:57 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003A

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Toluene	0.092	0.064	1.0	J	µg/L	1	9/27/2017 4:27:25 PM	B45921
Ethylbenzene	1.9	0.093	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Xylenes, Total	2.5	0.32	1.5		µg/L	1	9/27/2017 4:27:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	97.6	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Dibromofluoromethane	99.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	0.53	0.0097	0.050		mg/L	1	9/27/2017 4:27:25 PM	D45921
Surr: BFB	92.7	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	D45921

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

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



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003B

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.21	0.19	0.20		mg/L	1	9/25/2017 1:59:13 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:59:13 PM	34022
Surr: DNOP	136	0	79.2-146		%Rec	1	9/25/2017 1:59:13 PM	34022

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709B22-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457337		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	119	75.4	162			
Surr: DNOP	0.33		0.2500		133	79.2	146			

Sample ID	1709B22-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457338	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	75.4	162	4.57	20	
Surr: DNOP	0.33		0.2500		133	79.2	146	0	0	

Sample ID	LCS-34022		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 34022		RunNo: 45861					
Prep Date:	9/22/2017		Analysis Date: 9/25/2017		SeqNo: 1457341		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.31		0.2500		123	79.2	146			

Sample ID	MB-34022	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457342		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	0.61		0.5000		122	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460191	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460192	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.0	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.4	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	1709b22-001a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460194	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.1	70	130			
Toluene	20	1.0	20.00	0	98.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130	0.597	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 Quantitative 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921						
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	96.6	70	130	1.43	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0		
Surr: Toluene-d8	10		10.00		99.7	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1709B22

28-Sep-17

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

**Project:** GAC Quarterly 9-20-2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460211</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		93.3	70	130			

Sample ID <b>2.5ug gro lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460212</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	75.9	120			
Surr: BFB	9.3		10.00		93.2	70	130			

Sample ID <b>1709b22-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460215</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	9.3		10.00		93.4	70	130			

Sample ID <b>1709b22-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460216</b>		Units: <b>mg/L</b>					
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	70	130	0.723	20	
Surr: BFB	9.2		10.00		91.5	70	130	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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  
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: 1709B22

RcptNo: 1

Received By: Anne Thorne

9.21.17 0710 To 9.22.17  
9/20/2017 1:11:00 PM

Anne Thorne

Completed By: Anne Thorne

9/21/2017 11:23:15 AM

Anne Thorne

Reviewed By:

Dennis Long 9/21/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:		Date	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			









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

November 07, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 10 31 2017

OrderNo.: 1711008

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/1/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Inlet**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:25:00 AM**Lab ID:** 1711008-001A**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	11/3/2017 5:51:51 PM	G46875
Surr: BFB	91.2	70-130		%Rec	1	11/3/2017 5:51:51 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Ethylbenzene	1.5	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Toluene-d8	104	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711008

Date Reported: 11/7/2017

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

**Client Sample ID:** GAC - Inlet

**Project:** GAC Monthly 10 31 2017

**Collection Date:** 10/31/2017 10:25:00 AM

**Lab ID:** 1711008-001B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.30	0.20		mg/L	1	11/6/2017 4:12:51 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 4:12:51 PM	34801
Surr: DNOP	117	79.2-146		%Rec	1	11/6/2017 4:12:51 PM	34801

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

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



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002A**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/3/2017 6:21:13 PM	G46875
Surr: BFB	97.9	70-130		%Rec	1	11/3/2017 6:21:13 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Ethylbenzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Dibromofluoromethane	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Toluene-d8	103	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711008

Date Reported: 11/7/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 10 31 2017  
**Lab ID:** 1711008-002B

**Client Sample ID:** GAC - Lead  
**Collection Date:** 10/31/2017 10:30:00 AM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/6/2017 5:18:57 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 5:18:57 PM	34801
Surr: DNOP	114	79.2-146		%Rec	1	11/6/2017 5:18:57 PM	34801

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496769	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.3013	105	75.4	162			
Surr: DNOP	0.26		0.2500		104	79.2	146			

Sample ID	1711008-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496770	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.3013	109	75.4	162	3.15	20	
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0	

Sample ID	LCS-34801	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496772	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	72	170			
Surr: DNOP	0.28		0.2500		112	79.2	146			

Sample ID	MB-34801	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496773	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	0.59		0.5000		118	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495601</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495604</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.8	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>1711008-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495607</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID <b>1711008-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC - Lead</b>	Batch ID: <b>SL46875</b>		RunNo: <b>46875</b>							
Prep Date:	Analysis Date: <b>11/3/2017</b>		SeqNo: <b>1495608</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.7	70	130	0.504	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-002a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875						
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495608	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	97.8	70	130	3.60	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0		
Surr: Toluene-d8	10		10.00		102	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495610	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.5		10.00		95.1	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495611	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	70	130			
Surr: BFB	9.7		10.00		96.6	70	130			

Sample ID	1711008-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495615	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	93.9	70	130			
Surr: BFB	9.3		10.00		93.1	70	130			

Sample ID	1711008-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	92.4	70	130	0.929	20	
Surr: BFB	9.2		10.00		92.3	70	130	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1711008

RcptNo: 1

Received By: Anne Thorne 11/1/2017 7:00:00 AM

*Anne Thorne*

Completed By: Isaiah Ortiz 11/1/2017 9:19:35 AM

*IO*

Reviewed By: *AT 11/03/17*

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			



# Chain-of-Custody Record

Client: Western Refining Southwest, Inc.

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4166

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: GAC - Monthly

Date: 10-31-2017

Project #:

PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.6

Date Time Matrix Sample Request ID

10/31/17 1025

↓

1030

↓

GAC - Inlet

GAC - Inlet

GAC - Lead

GAC - Lead

5 VOA

1-250-ml  
Amber

5 VOA

1-250-ml  
Amber

HCl

Cool

HCl

Cool

Container Type and #

Preservative Type

HEAL No.

1711008

-001

-002

10-31-17

Date: 10/31/17

Time: 1552

Date: 10/31/17

Time: 1911

Relinquished by:

Relinquished by:

Received by:

Received by:

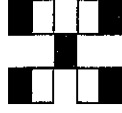
Date: 10/31/17

Date: 11/01/17

Remarks:

## Analysis Request

BTEX + MTBE + TMBs (8021)  
BTEX + MTBE + TPH (Gas only)  
TPH 8015B (GRO / DRO / MRO)  
TPH (Method 418.1)  
EDB (Method 504.1)  
PAH (8310 or 8270SIMS)  
RCRA 8 Metals  
Anions (F, Cl, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)  
8081 Pesticides / 8082 PCBs  
8260B (VOA) BTEX, MTBE only  
8270 (Semi-VOA)



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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





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

December 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 11-22-2017

OrderNo.: 1711C34

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/23/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Inlet

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:40:00 PM

**Lab ID:** 1711C34-001A

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Toluene-d8	101	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452

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

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



**Analytical Report**Lab Order: **1711C34**Date Reported: **12/6/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC Inlet**Project:** GAC Monthly 11-22-2017**Collection Date:** 11/22/2017 12:40:00 PM**Lab ID:** 1711C34-001B**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	12/2/2017 3:43:20 AM	GW4747
Surr: BFB	177	69.3-150	S	%Rec	1	12/2/2017 3:43:20 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001C

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.26	0.20		mg/L	1	11/29/2017 6:40:57 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 6:40:57 PM	35199
Surr: DNOP	121	79.2-146		%Rec	1	11/29/2017 6:40:57 PM	35199

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002A

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Toluene-d8	104	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/2/2017 4:06:43 AM	GW4747
Surr: BFB	88.2	69.3-150		%Rec	1	12/2/2017 4:06:43 AM	GW4747

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002C

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/29/2017 7:46:50 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 7:46:50 PM	35199
Surr: DNOP	125	79.2-146		%Rec	1	11/29/2017 7:46:50 PM	35199

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

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



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	1711C34-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513103	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.2629	108	89.6	145			
Surr: DNOP	0.27		0.2500		108	79.2	146			

Sample ID	1711C34-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513104	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.2629	106	89.6	145	1.74	20	
Surr: DNOP	0.27		0.2500		108	79.2	146	0	0	

Sample ID	LCS-35199	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513106	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	76.5	158			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	MB-35199	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513107	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	0.56		0.5000		113	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	RB-II	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516078	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		92.1	69.3	150			

Sample ID	2.5UG GRO LCS-II	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW47476	RunNo:	47476					
Prep Date:		Analysis Date:	12/1/2017	SeqNo:	1516079	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.8	75.8	123			
Surr: BFB	21		20.00		103	69.3	150			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514491	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcsb	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514492	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.9	70	130			
Toluene	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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  
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: 1711C34

RcptNo: 1

Received By: Andy Freeman

11/23/2017 8:35:00 AM

Completed By: Anne Thorne

11/28/2017 9:52:46 AM

Reviewed By: *SRP* 11/28/17

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

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			









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

December 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 12 13 2017

OrderNo.: 1712935

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001A

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Surr: 1,2-Dichloroethane-d4	93.7	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Dibromofluoromethane	99.1	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.026	0.0097	0.050	J	mg/L	1	12/18/2017 12:42:17 PM	R47868
Surr: BFB	103	0	70-130		%Rec	1	12/18/2017 12:42:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001B

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 7:33:30 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 7:33:30 AM	35578
Surr: DNOP	123	0	79.2-146		%Rec	1	12/20/2017 7:33:30 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002A

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Methyl tert-butyl ether (MTBE)	0.32	0.24	1.0	J	µg/L	1	12/19/2017 5:31:35 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Surr: 1,2-Dichloroethane-d4	90.4	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Dibromofluoromethane	96.3	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.034	0.0097	0.050	J	mg/L	1	12/18/2017 1:05:17 PM	R47868
Surr: BFB	99.6	0	70-130		%Rec	1	12/18/2017 1:05:17 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002B

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 8:39:35 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 8:39:35 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 8:39:35 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003A

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Ethylbenzene	1.3	0.093	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Xylenes, Total	1.6	0.32	1.5		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: 4-Bromofluorobenzene	87.9	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Dibromofluoromethane	93.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: AG	
Gasoline Range Organics (GRO)	0.78	0.0097	0.050		mg/L	1	12/18/2017 1:28:16 PM	R47868
Surr: BFB	94.1	0	70-130		%Rec	1	12/18/2017 1:28:16 PM	R47868

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

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



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003B

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.31	0.19	0.20		mg/L	1	12/20/2017 9:01:37 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 9:01:37 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 9:01:37 AM	35578

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	35578	RunNo:	47873					
Prep Date:	12/18/2017	Analysis Date:	12/20/2017	SeqNo:	1534630	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	111	89.6	145			
Surr: DNOP	0.29		0.2500		116	79.2	146			

Sample ID	1712935-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	35578	RunNo:	47873					
Prep Date:	12/18/2017	Analysis Date:	12/20/2017	SeqNo:	1534631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	113	89.6	145	1.58	20	
Surr: DNOP	0.29		0.2500		118	79.2	146	0	0	

Sample ID	LCS-35578		SampType:	LCS		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	LCSW		Batch ID:	35578		RunNo:	47873				
Prep Date:	12/18/2017		Analysis Date:	12/20/2017		SeqNo:	1534634		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	76.5	158				
Surr: DNOP	0.30		0.2500		119	79.2	146				

Sample ID	MB-35578	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534635		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	0.47		0.5000		93.5	79.2	146			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533783</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533784</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.8	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID <b>1712935-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533792</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID <b>1712935-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533793</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130	2.43	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 Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903						
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533793	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	95.6	70	130	0.265	20		
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.7	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0		
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.4	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531812	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	70	130			
Surr: BFB	9.8		10.00		97.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531813	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		101	70	130			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1712935

RcptNo: 1

Received By: Anne Thorne 12/15/2017 7:30:00 AM

Completed By: Michelle Garcia 12/15/2017 11:01:06 AM

Reviewed By: SRE 12/15/17

*Anne Thorne*  
*Michelle Garcia*

### Chain of Custody

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

### Log In

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

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

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

17. Additional remarks:

### 18. Cooler Information

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









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

January 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 1-4-2017

OrderNo.: 1701161

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 1/5/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Lead

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:10:00 PM

**Lab ID:** 1701161-001

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	1/11/2017 12:25:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 12:25:23 PM
Surr: DNOP	126	67.9-149		%Rec	1	1/11/2017 12:25:23 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/10/2017 11:22:10 AM
Surr: BFB	79.7	66.4-120		%Rec	1	1/10/2017 11:22:10 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Ethylbenzene	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:30:08 PM
Xylenes, Total	ND	1.5		µg/L	1	1/9/2017 1:30:08 PM
Surr: 1,2-Dichloroethane-d4	99.0	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: 4-Bromofluorobenzene	84.1	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	1/9/2017 1:30:08 PM
Surr: Toluene-d8	90.8	70-130		%Rec	1	1/9/2017 1:30:08 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1701161

Date Reported: 1/18/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 1-4-2017

**Collection Date:** 1/4/2017 12:20:00 PM

**Lab ID:** 1701161-002

**Matrix:** AQUEOUS

**Received Date:** 1/5/2017 7:25:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.84	0.20		mg/L	1	1/11/2017 1:30:12 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	1/11/2017 1:30:12 PM
Surr: DNOP	130	67.9-149		%Rec	1	1/11/2017 1:30:12 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2.8	0.50		mg/L	10	1/10/2017 11:46:41 AM
Surr: BFB	103	66.4-120		%Rec	10	1/10/2017 11:46:41 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Toluene	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Ethylbenzene	170	10		µg/L	10	1/9/2017 9:17:10 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	1/9/2017 1:59:22 PM
Xylenes, Total	680	15		µg/L	10	1/9/2017 9:17:10 PM
Surr: 1,2-Dichloroethane-d4	75.1	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Dibromofluoromethane	79.7	70-130		%Rec	1	1/9/2017 1:59:22 PM
Surr: Toluene-d8	93.9	70-130		%Rec	1	1/9/2017 1:59:22 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	MB-29629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252027		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	0.62		0.5000		123	67.9	149			

Sample ID	1701161-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252070		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	115	75.4	162			
Surr: DNOP	0.28		0.2500		112	67.9	149			

Sample ID	LCS-29629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 29629		RunNo: 39953					
Prep Date:	1/11/2017		Analysis Date: 1/11/2017		SeqNo: 1252071		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	72	170			
Surr: DNOP	0.28		0.2500		111	67.9	149			

Sample ID	1701161-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Lead		Batch ID:	29629		RunNo:	39953				
Prep Date:	1/11/2017		Analysis Date:	1/11/2017		SeqNo:	1252199		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.07	20		
Surr: DNOP	0.28		0.2500		112	67.9	149	0	0		

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251625	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	15		20.00		76.6	66.4	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	107	79.1	123			
Surr: BFB	18		20.00		89.0	66.4	120			

Sample ID	1701161-002AMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G39946	RunNo:	39946					
Prep Date:		Analysis Date:	1/10/2017	SeqNo:	1251632	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.6	0.50	5.000	2.830	94.8	64.8	129			
Surr: BFB	210		200.0		105	66.4	120			

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1701161

18-Jan-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 1-4-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250952	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130			
Surr: Toluene-d8	8.9		10.00		88.9	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL39912	RunNo:	39912					
Prep Date:		Analysis Date:	1/9/2017	SeqNo:	1250953	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	19	1.0	20.00	0	97.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.8	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		89.5	70	130			
Surr: Dibromofluoromethane	9.8		10.00		98.4	70	130			
Surr: Toluene-d8	9.1		10.00		91.5	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1701161

RcptNo: 1

Received by/date:

*RM*

*01/05/17*

Logged By: Ashley Gallegos

1/5/2017 7:25:00 AM

*AG*

Completed By: Ashley Gallegos

1/5/2017 12:25:32 PM

*AG*

Reviewed By:

*[Signature]*

*01/05/17*

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

# of preserved  
bottles checked  
for pH:  
( $<2$  or  $>12$  unless noted)  
Adjusted?  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

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

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: \_\_\_\_\_

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Yes			



<b>Chain-of-Custody Record</b>		Turn-Around Time:
Client: <b>Western Refining</b>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush
		Project Name: <b>GAC - Lead</b>
Mailing Address: <b>#50 CR 4990</b>		Date: <u>1-4-2017</u>
<b>Bloomfield, NM 87413</b>		Project #:
Phone #: <b>505-632-4135</b>		PO#12615519
email or Fax#:		Project Manager:
QA/QC Package:		
<input type="checkbox"/> Standard	<input checked="" type="checkbox"/> Level 4 (Full Validation)	
<input type="checkbox"/> Other _____		
<input checked="" type="checkbox"/> EDD (Type) _____		
		Sampler: <u>Michael A Wicker</u>
		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
		Sample Temperature: <u>2.2</u>

☒ Standard      ☐ Rush

Date: 1 - 4 - 2017

Project #:

PO#12615519





**Project Manager:**

Sampler: Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 72

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
1-4-17	1530			1/4/17	1530
Date:	Time:	Relinquished by:	Received by:	Date	Time
1/4/17	1830			1/5/17	0725

Remarks:

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





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

February 27, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC-Lead 2-15-2017

OrderNo.: 1702729

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 2/16/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC Lead

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:20:00 AM

**Lab ID:** 1702729-001

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	2/21/2017 2:43:43 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 2:43:43 PM	30313
Surr: DNOP	129	86-162		%Rec	1	2/21/2017 2:43:43 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/22/2017 12:15:40 PM	G40920
Surr: BFB	87.1	52.3-138		%Rec	1	2/22/2017 12:15:40 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Toluene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Ethylbenzene	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Xylenes, Total	ND	1.5		µg/L	1	2/20/2017 12:27:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Dibromofluoromethane	109	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851
Surr: Toluene-d8	99.0	70-130		%Rec	1	2/20/2017 12:27:00 PM	SL40851

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1702729

Date Reported: 2/27/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** GAC-Lead 2-15-2017

**Collection Date:** 2/15/2017 10:30:00 AM

**Lab ID:** 1702729-002

**Matrix:** AQUEOUS

**Received Date:** 2/16/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	1.1	0.20		mg/L	1	2/21/2017 4:09:02 PM	30313
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	2/21/2017 4:09:02 PM	30313
Surr: DNOP	114	86-162		%Rec	1	2/21/2017 4:09:02 PM	30313
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.50		mg/L	10	2/22/2017 12:39:07 PM	G40920
Surr: BFB	109	52.3-138		%Rec	10	2/22/2017 12:39:07 PM	G40920
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Toluene	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Ethylbenzene	180	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Methyl tert-butyl ether (MTBE)	ND	5.0	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Xylenes, Total	700	7.5	D	µg/L	5	2/20/2017 12:51:00 PM	SL40851
Surr: 1,2-Dichloroethane-d4	96.4	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: 4-Bromofluorobenzene	107	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Dibromofluoromethane	104	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851
Surr: Toluene-d8	102	70-130	D	%Rec	5	2/20/2017 12:51:00 PM	SL40851

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	LCS-30313		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280625		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	137	72	170			
Surr: DNOP	0.30		0.2500		121	86	162			

Sample ID	MB-30313	SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range						
Client ID:	PBW	Batch ID: 30313		RunNo: 40870						
Prep Date:	2/21/2017	Analysis Date: 2/21/2017		SeqNo: 1280626		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	0.55		0.5000		110	86	162			

Sample ID	1702729-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280821		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	133	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1702729-001CMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 30313		RunNo: 40870					
Prep Date:	2/21/2017		Analysis Date: 2/21/2017		SeqNo: 1280822		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.3	0.20	2.500	0	130	75.4	162	2.28	20	
Surr: DNOP	0.29		0.2500		115	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281743	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	17		20.00		86.8	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281744	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	79.1	123			
Surr: BFB	19		20.00		94.5	52.3	138			

Sample ID	1702729-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281750	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.9	0.50	5.000	3.902	100	64.8	129			
Surr: BFB	230		200.0		117	52.3	138			

Sample ID	1702729-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	G40920	RunNo:	40920					
Prep Date:		Analysis Date:	2/22/2017	SeqNo:	1281751	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	8.2	0.50	5.000	3.902	85.2	64.8	129	8.90	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1702729

27-Feb-17

Client: Western Refining Southwest, Inc.

Project: GAC-Lead 2-15-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279940	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	22	1.0	20.00	0	110	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL40851	RunNo:	40851					
Prep Date:		Analysis Date:	2/20/2017	SeqNo:	1279941	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1702729

RcptNo: 1

Received by/date: AT 02/16/17

Logged By: Anne Thorne 2/16/2017 7:10:00 AM

Completed By: Anne Thorne 2/16/2017 9:41:17 AM

Reviewed By: mg 02/17/17

*Anne Thorne*

*Anne Thorne*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

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

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

17. Additional remarks:

## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			









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

March 15, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 3-8-2017

OrderNo.: 1703440

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 3/9/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lead

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:30:00 AM

**Lab ID:** 1703440-001

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 1:09:38 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 1:09:38 PM
Surr: DNOP	110	86-162		%Rec	1	3/13/2017 1:09:38 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 4:11:42 PM
Surr: BFB	87.1	52.3-138		%Rec	1	3/9/2017 4:11:42 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 2:23:00 PM
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	3/9/2017 2:23:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 2:23:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Dibromofluoromethane	114	70-130		%Rec	1	3/9/2017 2:23:00 PM
Surr: Toluene-d8	96.4	70-130		%Rec	1	3/9/2017 2:23:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Inlet

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:35:00 AM

**Lab ID:** 1703440-002

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	0.67	0.20		mg/L	1	3/13/2017 2:33:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 2:33:50 PM
Surr: DNOP	105	86-162		%Rec	1	3/13/2017 2:33:50 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2.6	0.50		mg/L	10	3/9/2017 4:35:02 PM
Surr: BFB	108	52.3-138		%Rec	10	3/9/2017 4:35:02 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Ethylbenzene	80	1.0		µg/L	1	3/9/2017 2:47:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 2:47:00 PM
Xylenes, Total	230	15		µg/L	10	3/10/2017 11:25:00 AM
Surr: 1,2-Dichloroethane-d4	93.9	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Dibromofluoromethane	108	70-130		%Rec	1	3/9/2017 2:47:00 PM
Surr: Toluene-d8	104	70-130		%Rec	1	3/9/2017 2:47:00 PM

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

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



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1703440

Date Reported: 3/15/2017

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

**Client Sample ID:** GAC-Lag

**Project:** River Terrace GAC 3-8-2017

**Collection Date:** 3/8/2017 11:25:00 AM

**Lab ID:** 1703440-003

**Matrix:** AQUEOUS

**Received Date:** 3/9/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>MAB</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	3/13/2017 3:02:45 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	3/13/2017 3:02:45 PM
Surr: DNOP	94.5	86-162		%Rec	1	3/13/2017 3:02:45 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/9/2017 6:08:16 PM
Surr: BFB	87.4	52.3-138		%Rec	1	3/9/2017 6:08:16 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Toluene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Ethylbenzene	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/9/2017 3:10:00 PM
Xylenes, Total	ND	1.5		µg/L	1	3/9/2017 3:10:00 PM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	3/9/2017 3:10:00 PM
Surr: Toluene-d8	96.6	70-130		%Rec	1	3/9/2017 3:10:00 PM

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

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	MB-30629		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1294967		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	0.48		0.5000		95.8	86	162			

Sample ID	LCS-30629		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295010		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	95.8	72	170			
Surr: DNOP	0.23		0.2500		90.4	86	162			

Sample ID	1703440-001CMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295012		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		110	86	162			

Sample ID	1703440-001CMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Lead		Batch ID: 30629		RunNo: 41321					
Prep Date:	3/10/2017		Analysis Date: 3/13/2017		SeqNo: 1295043		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	3.23	20	
Surr: DNOP	0.26		0.2500		105	86	162	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293384	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	17		20.00		87.2	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293385	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0	97.2	79.1	123			
Surr: BFB	19		20.00		94.4	52.3	138			

Sample ID	1703440-002BMS	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293388	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.3	0.50	5.000	2.586	93.8	64.8	129			
Surr: BFB	230		200.0		115	52.3	138			

Sample ID	1703440-002BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC-Inlet	Batch ID:	A41266	RunNo:	41266					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1293389	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	7.0	0.50	5.000	2.586	88.0	64.8	129	4.09	20	
Surr: BFB	230		200.0		114	52.3	138	0	0	

### Qualifiers:

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

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294312	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Ethylbenzene	20	1.0	20.00	0	100	70	130			
Methyl tert-butyl ether (MTBE)	39	1.0	40.00	0	96.8	70	130			
Xylenes, Total	60	1.5	60.00	0	100	70	130			
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.4	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41260	RunNo:	41260					
Prep Date:		Analysis Date:	3/9/2017	SeqNo:	1294316	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294831	Units:	%Rec			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	10		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	9.8		10.00		98.5	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1703440

15-Mar-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 3-8-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL41285	RunNo:	41285					
Prep Date:		Analysis Date:	3/10/2017	SeqNo:	1294832	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		105	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1703440

RcptNo: 1

Received by/date:	AT	03/09/17
Logged By:	Lindsay Mangin	3/9/2017 7:10:00 AM
Completed By:	Lindsay Mangin	3/9/2017 8:30:10 AM
Reviewed By:	WS	03/09/17

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

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

## Special Handling (if applicable)

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

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



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

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 3-8-2017

Project #:

PO#12618990

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature:	10
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## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

[illegible]

Date:	Time:	Relinquished by:
-------	-------	------------------

3-8-17 1545

Relinquished by: \_\_\_\_\_

Received by:	Date	Time
--------------	------	------

Monte Carlo

Date	Time
------	------

3) 8) 17 1545

Received by: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Date \_\_\_\_\_ Time \_\_\_\_\_

Remarks:

Date:	Time:
-------	-------

Christian Walker

03/09/17 0710

109117 0710

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

April 19, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace GAC 4 12 2017

OrderNo.: 1704550

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 4/13/2017 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](http://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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Lead

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:45:00 AM

**Lab ID:** 1704550-001

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/18/2017 1:07:14 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 1:07:14 AM
Surr: DNOP	100	86-162		%Rec	1	4/18/2017 1:07:14 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/17/2017 6:15:37 PM
Surr: BFB	94.3	52.3-138		%Rec	1	4/17/2017 6:15:37 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: rde
Benzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 5:43:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/14/2017 5:43:00 PM
Surr: 1,2-Dichloroethane-d4	94.2	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	4/14/2017 5:43:00 PM
Surr: Toluene-d8	105	70-130		%Rec	1	4/14/2017 5:43:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1704550

Date Reported: 4/19/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Inlet

**Project:** River Terrace GAC 4 12 2017

**Collection Date:** 4/12/2017 9:50:00 AM

**Lab ID:** 1704550-002

**Matrix:** AQUEOUS

**Received Date:** 4/13/2017 7:52:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.64	0.20		mg/L	1	4/18/2017 2:31:30 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/18/2017 2:31:30 AM
Surr: DNOP	105	86-162		%Rec	1	4/18/2017 2:31:30 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.9	0.25		mg/L	5	4/17/2017 6:39:00 PM
Surr: BFB	137	52.3-138		%Rec	5	4/17/2017 6:39:00 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>rde</b>
Benzene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Toluene	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Ethylbenzene	160	10		µg/L	10	4/14/2017 6:07:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/14/2017 6:31:00 PM
Xylenes, Total	720	15		µg/L	10	4/14/2017 6:07:00 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	4/14/2017 6:31:00 PM
Surr: Toluene-d8	106	70-130		%Rec	1	4/14/2017 6:31:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	1704550-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324843		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	75.4	162			
Surr: DNOP	0.26		0.2500		104	86	162			

Sample ID	1704550-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead	Batch ID:	31252	RunNo:	42147					
Prep Date:	4/14/2017	Analysis Date:	4/18/2017	SeqNo:	1324844	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	75.4	162	3.18	20	
Surr: DNOP	0.26		0.2500		102	86	162	0	0	

Sample ID	LCS-31252		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 31252		RunNo: 42147					
Prep Date:	4/14/2017		Analysis Date: 4/18/2017		SeqNo: 1324846		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	98.4	72	170			
Surr: DNOP	0.25		0.2500		98.2	86	162			

Sample ID	MB-31252	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 31252			RunNo: 42147					
Prep Date:	4/14/2017	Analysis Date: 4/18/2017			SeqNo: 1324847		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	0.49		0.5000		98.4	86	162			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

**Client:** Western Refining Southwest, Inc.

**Project:** River Terrace GAC 4 12 2017

Sample ID <b>B30</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324697</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		93.3	52.3	138			

Sample ID <b>2.5UG GRO LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324698</b>		Units: <b>mg/L</b>					
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	20		20.00		101	52.3	138			

Sample ID <b>1704550-002AMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324701</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.2	0.25	2.500	3.938	88.8	64.8	129			
Surr: BFB	140		100.0		145	52.3	138			S

Sample ID <b>1704550-002AMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>G42172</b>		RunNo: <b>42172</b>							
Prep Date:	Analysis Date: <b>4/17/2017</b>		SeqNo: <b>1324702</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	6.0	0.25	2.500	3.938	82.2	64.8	129	2.75	20	
Surr: BFB	140		100.0		143	52.3	138	0	0	S

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1704550

19-Apr-17

Client: Western Refining Southwest, Inc.

Project: River Terrace GAC 4 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324421	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.9		10.00		89.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		99.6	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL42144	RunNo:	42144					
Prep Date:		Analysis Date:	4/14/2017	SeqNo:	1324422	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		103	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1704550

RcptNo: 1

Received By: Anne Thorne 4/13/2017 7:52:00 AM

Completed By: Ashley Gallegos 4/13/2017 8:46:41 AM

Reviewed By: *822 04/13/17*

*Anne Thorne*  
*AJG*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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			



Client: **Western Refining Southwest, Inc.**

Mailing Address: #50 CR 4990

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

**X** EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **River Terrace - GAC**

Date: 4-12-2017

Project #:

PO#12618990



Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

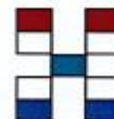
On Ice: ☒ Yes ☐ No

Sample Temperature:	1.0
---------------------	-----

[illegible]

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-12-17	1313			4/12/17	1313

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/12/17	1847	M. Walt	[Signature]	04/13/17	0752



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

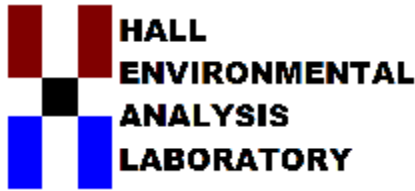
Tel. 505-345-3975 Fax 505-345-4107

### Analysis Request

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

June 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL:

FAX

RE: River Terrace - GAC 05/24/17

OrderNo.: 1705C89

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 5/25/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1705C89

Date Reported: 6/6/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC - Lead

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:25:00 AM

**Lab ID:** 1705C89-001

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: TOM
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 2:30:54 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 2:30:54 PM
Surr: DNOP	113	86-162		%Rec	1	5/30/2017 2:30:54 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: RAA
Benzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Toluene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Ethylbenzene	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	5/25/2017 7:06:00 PM
Xylenes, Total	ND	1.5		µg/L	1	5/25/2017 7:06:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Dibromofluoromethane	107	70-130		%Rec	1	5/25/2017 7:06:00 PM
Surr: Toluene-d8	103	70-130		%Rec	1	5/25/2017 7:06:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: DJF
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/31/2017 5:25:16 PM
Surr: BFB	99.5	70-130		%Rec	1	5/31/2017 5:25:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1705C89**

Date Reported: **6/6/2017**

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC - Inlet

**Project:** River Terrace - GAC 05/24/17

**Collection Date:** 5/24/2017 10:30:00 AM

**Lab ID:** 1705C89-002

**Matrix:** AQUEOUS

**Received Date:** 5/25/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	5/30/2017 3:37:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	5/30/2017 3:37:33 PM
Surr: DNOP	97.0	86-162		%Rec	1	5/30/2017 3:37:33 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Toluene	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Ethylbenzene	1.2	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0	D	µg/L	2	5/25/2017 7:30:00 PM
Xylenes, Total	35	1.5	D	µg/L	2	5/25/2017 7:30:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: 4-Bromofluorobenzene	105	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Dibromofluoromethane	106	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
Surr: Toluene-d8	103	70-130	D	%Rec	2	5/25/2017 7:30:00 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	0.55	0.10	D	mg/L	2	5/31/2017 6:50:50 PM
Surr: BFB	103	70-130	D	%Rec	2	5/31/2017 6:50:50 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	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#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	1705C89-001CMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID:	32012	RunNo:	43123					
Prep Date:	5/30/2017	Analysis Date:	5/30/2017	SeqNo:	1357826	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.4	75.4	162			
Surr: DNOP	0.25		0.2500		101	86	162			

Sample ID	LCS-32012	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	32012	RunNo:	43123					
Prep Date:	5/30/2017	Analysis Date:	5/30/2017	SeqNo:	1357829	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	92.7	72	170			
Surr: DNOP	0.26		0.2500		103	86	162			

Sample ID	MB-32012	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	32012	RunNo:	43123					
Prep Date:	5/30/2017	Analysis Date:	5/30/2017	SeqNo:	1357830	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		99.5	86	162			

Sample ID	1705C89-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Lead	Batch ID:	32012	RunNo:	43153					
Prep Date:	5/30/2017	Analysis Date:	5/31/2017	SeqNo:	1358343	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	97.6	75.4	162	4.40	20	
Surr: DNOP	0.25		0.2500		101	86	162	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

Client: Western Refining Southwest, Inc.

Project: River Terrace - GAC 05/24/17

Sample ID	100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID: SL43095			RunNo: 43095					
Prep Date:		Analysis Date: 5/25/2017			SeqNo: 1356263		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.8	70	130			
Toluene	20	1.0	20.00	0	98.7	70	130			
Ethylbenzene	20	1.0	20.00	0	99.7	70	130			
Methyl tert-butyl ether (MTBE)	33	1.0	40.00	0	82.2	70	130			
Xylenes, Total	59	1.5	60.00	0	98.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.9	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	11		10.00		106	70	130			

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: SL43095			RunNo: 43095					
Prep Date:		Analysis Date: 5/25/2017			SeqNo: 1356266		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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		108	70	130			
Surr: Toluene-d8	10		10.00		103	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1705C89

06-Jun-17

**Client:** Western Refining Southwest, Inc.

**Project:** River Terrace - GAC 05/24/17

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359084	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	107	75.9	120			
Surr: BFB	10		10.00		102	70	130			

Sample ID	1705c89-001a ms g	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359094	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	10		10.00		101	70	130			

Sample ID	1705c89-001a msd g	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Lead	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1359095	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	112	70	130	0.394	20	
Surr: BFB	10		10.00		99.9	70	130	0	0	

Sample ID	rb1	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	GW43178	RunNo:	43178					
Prep Date:		Analysis Date:	5/31/2017	SeqNo:	1360778	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		100	70	130			

### Qualifiers:

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1705C89

RcptNo: 1

Received By: Anne Thorne 5/25/2017 7:10:00 AM

*Anne Thorne*

Completed By: Andy Jansson 5/25/2017 8:44:02 AM

*Andy Jansson*

Reviewed By: ENM 05/25/17

### 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:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: \_\_\_\_\_

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			









Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

June 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC 6 14 2017

OrderNo.: 1706900

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 6/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** Lag

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:10:00 AM

**Lab ID:** 1706900-001

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 1:37:04 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 1:37:04 PM
Surr: DNOP	114	86-162		%Rec	1	6/20/2017 1:37:04 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:07:27 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:07:27 AM
Surr: 1,2-Dichloroethane-d4	115	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 11:07:27 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:07:27 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:07:27 AM
Surr: BFB	91.0	70-130		%Rec	1	6/19/2017 11:07:27 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**

Date Reported: **6/21/2017**

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** Lead

**Project:** GAC 6 14 2017

**Collection Date:** 6/14/2017 11:20:00 AM

**Lab ID:** 1706900-002

**Matrix:** AQUEOUS

**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	6/20/2017 2:43:50 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 2:43:50 PM
Surr: DNOP	122	86-162		%Rec	1	6/20/2017 2:43:50 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Toluene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Ethylbenzene	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 11:36:52 AM
Xylenes, Total	ND	1.5		µg/L	1	6/19/2017 11:36:52 AM
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Dibromofluoromethane	111	70-130		%Rec	1	6/19/2017 11:36:52 AM
Surr: Toluene-d8	100	70-130		%Rec	1	6/19/2017 11:36:52 AM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/19/2017 11:36:52 AM
Surr: BFB	89.1	70-130		%Rec	1	6/19/2017 11:36:52 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1706900**Date Reported: **6/21/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** Inlet**Project:** GAC 6 14 2017**Collection Date:** 6/14/2017 11:30:00 AM**Lab ID:** 1706900-003**Matrix:** AQUEOUS**Received Date:** 6/15/2017 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.32	0.20		mg/L	1	6/20/2017 3:06:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	6/20/2017 3:06:09 PM
Surr: DNOP	126	86-162		%Rec	1	6/20/2017 3:06:09 PM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>AG</b>
Benzene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Toluene	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Ethylbenzene	3.3	1.0		µg/L	1	6/19/2017 12:06:22 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	6/19/2017 12:06:22 PM
Xylenes, Total	14	1.5		µg/L	1	6/19/2017 12:06:22 PM
Surr: 1,2-Dichloroethane-d4	113	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: 4-Bromofluorobenzene	87.7	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Dibromofluoromethane	109	70-130		%Rec	1	6/19/2017 12:06:22 PM
Surr: Toluene-d8	101	70-130		%Rec	1	6/19/2017 12:06:22 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>AG</b>
Gasoline Range Organics (GRO)	0.57	0.050		mg/L	1	6/19/2017 12:06:22 PM
Surr: BFB	84.5	70-130		%Rec	1	6/19/2017 12:06:22 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	MB-32361		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1374970		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	0.59		0.5000		118	86	162			

Sample ID	1706900-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375177		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	116	75.4	162			
Surr: DNOP	0.30		0.2500		119	86	162			

Sample ID	1706900-001BMSD		SampType: MSD		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375178		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162	3.79	20	
Surr: DNOP	0.31		0.2500		124	86	162	0	0	

Sample ID	LCS-32361		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32361		RunNo: 43629					
Prep Date:	6/19/2017		Analysis Date: 6/20/2017		SeqNo: 1375179		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.29		0.2500		114	86	162			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374233	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	120	70	130			
Toluene	18	1.0	20.00	0	90.4	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		113	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		109	70	130			
Surr: Dibromofluoromethane	12		10.00		119	70	130			
Surr: Toluene-d8	9.6		10.00		96.3	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374234	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.9		10.00		99.5	70	130			

Sample ID	1706900-001ams	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374236	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	0	118	70	130			
Toluene	18	1.0	20.00	0	88.9	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	12		10.00		118	70	130			
Surr: Toluene-d8	9.4		10.00		93.9	70	130			

Sample ID	1706900-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374237	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	114	70	130	3.77	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 Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	1706900-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	R43623	RunNo:	43623						
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374237	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	18	1.0	20.00	0	90.0	70	130	1.26	20		
Surr: 1,2-Dichloroethane-d4	11		10.00		110	70	130	0	0		
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130	0	0		
Surr: Dibromofluoromethane	11		10.00		110	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.3	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1706900

21-Jun-17

Client: Western Refining Southwest, Inc.

Project: GAC 6 14 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374219	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	75.9	120			
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374220	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		92.9	70	130			

Sample ID	1706900-002ams	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374223	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.49	0.050	0.5000	0.03220	91.8	70	130			
Surr: BFB	8.9		10.00		89.0	70	130			

Sample ID	1706900-002amsd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	Lead	Batch ID:	A43623	RunNo:	43623					
Prep Date:		Analysis Date:	6/19/2017	SeqNo:	1374224	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0.03220	84.2	70	130	7.96	20	
Surr: BFB	8.9		10.00		88.8	70	130	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1706900**

RcptNo: **1**

Received By: **Sophia Campuzano**

6/15/2017 9:00:00 AM

Completed By: **Ashley Gallegos**

6/15/2017 2:40:06 PM

Reviewed By: **ENN**

6/16/17

*Sophia Campuzano*
*Ashley Gallegos*

## 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: \_\_\_\_\_  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: \_\_\_\_\_

## Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:			
Client Instructions:			

17. Additional remarks:

## 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			



Client: **Western Refining**

Mailing Address: **50 CR 4990**

Bloomfield, NM 87413

Phone #: **505-632-4135**

email or Fax#:

QA/QC Package:

☐ Standard

**X Level 4 (Full Validation)**

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ RushProject Name: **GAC**

6/14/2017

Project #:

PO#12618990

Project Manager:

Kelly Robinson

**Sampler:** Michael A Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.3

[illegible]

Date:	Time:
-------	-------

Relinquished by:

Received by:

Date	Time
------	------

Remarks:	
----------	--

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by:

Received by:

Date \_\_\_\_\_ Time \_\_\_\_\_

1





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707610

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

## Case Narrative

WO#: 1707610  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707610**

Date Reported: **7/26/2017**

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC-Inlet

**Project:** GAC Monthly 7 12 2017

**Collection Date:** 7/12/2017 11:30:00 AM

**Lab ID:** 1707610-001

**Matrix:** AQUEOUS

**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.89	0.20		mg/L	1	7/24/2017 2:15:26 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 2:15:26 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 2:15:26 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1.8	0.050	P	mg/L	1	7/14/2017 2:22:22 PM	G44219
Surr: BFB	352	52.3-138	SP	%Rec	1	7/14/2017 2:22:22 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Ethylbenzene	20	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Xylenes, Total	26	1.5	P	µg/L	1	7/19/2017 3:59:22 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: 4-Bromofluorobenzene	91.8	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Dibromofluoromethane	99.1	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318
Surr: Toluene-d8	107	70-130	P	%Rec	1	7/19/2017 3:59:22 AM	B44318

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	1707610-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC-Inlet	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404671		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.9	0.20	2.500	0.8940	119	75.4	162			
Surr: DNOP	0.29		0.2500		116	86	162			

Sample ID	LCS-32852		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 32852			RunNo: 44411					
Prep Date:	7/18/2017	Analysis Date: 7/24/2017			SeqNo: 1404673		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	0.59		0.5000		118	86	162			

Sample ID	1707610-001BMSD		SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC-Inlet		Batch ID:	32852		RunNo:	44411				
Prep Date:	7/18/2017		Analysis Date:	7/24/2017		SeqNo:	1404774		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	0.8940	126	75.4	162	4.55	20		
Surr: DNOP	0.30		0.2500		120	86	162	0	0		

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	52.3	138			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707610

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1707610**

RcptNo: **1**

Received By: **Anne Thorne**

7/13/2017 7:10:00 AM



Completed By: **Ashley Gallegos**

7/13/2017 10:02:10 AM



Reviewed By: 

7/14/17

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:		Date:	
By Whom:		Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



## Turn-Around Time:

☒ Standard ☐ Rush\_\_\_\_\_

Project Name: **GAC - Monthly**

Date: 7-12-2017

Project #:  
PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

**X Level 4 (Full Validation)**

On Ice: ☒ Yes ☐ No

Sample Temperature:  $3.5 - (F - 1.0) = 2.5$

Analysis Request						
	BTEX + MTBE + TMB's (8021)					
	BTEX + MTBE + TPH (Gas only)					
	TPH 8015B (GRO / DRO / MRC)	X				
	TPH (Method 418.1)					
	EDB (Method 504.1)					
	PAH (8310 or 8270SIMS)					
	RCRA 8 Metals					
	Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )					
	8081 Pesticides / 8082 PCB's					
	8260B (VOA) BTEX, MTBE only	X				
	8270 (Semi-VOA)					
	Air Bubbles (Y or N)					

Remarks:	

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

July 26, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 7 12 2017

OrderNo.: 1707611

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/13/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

## Case Narrative

WO#: 1707611  
Date: 7/26/2017

---

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 7 12 2017

---

### Analytical Notes Regarding EPA Method 8260B:

The pH of the water samples for volatiles was greater than 2, however the samples were analyzed within 7 days of collection. The pH is not required to be less than 2 if analyzed within 7 days of collection.



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1707611**Date Reported: **7/26/2017****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC-Lead**Project:** GAC Monthly 7 12 2017**Collection Date:** 7/12/2017 11:20:00 AM**Lab ID:** 1707611-001**Matrix:** AQUEOUS**Received Date:** 7/13/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	7/24/2017 3:22:12 PM	32852
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	7/24/2017 3:22:12 PM	32852
Surr: DNOP	118	86-162		%Rec	1	7/24/2017 3:22:12 PM	32852
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	7/14/2017 2:46:03 PM	G44219
Surr: BFB	85.0	52.3-138	P	%Rec	1	7/14/2017 2:46:03 PM	G44219
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Toluene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Ethylbenzene	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Xylenes, Total	ND	1.5	P	µg/L	1	7/19/2017 4:56:33 AM	B44318
Surr: 1,2-Dichloroethane-d4	96.7	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: 4-Bromofluorobenzene	93.4	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Dibromofluoromethane	98.2	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318
Surr: Toluene-d8	106	70-130	P	%Rec	1	7/19/2017 4:56:33 AM	B44318

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	LCS-32852		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	122	72	170			
Surr: DNOP	0.28		0.2500		113	86	162			

Sample ID	MB-32852		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 32852		RunNo: 44411					
Prep Date:	7/18/2017		Analysis Date: 7/24/2017		SeqNo: 1404673		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	0.59		0.5000		118	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
PQL Practical Quantitative 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#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	RB	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397180	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	52.3	138			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44219	RunNo:	44219					
Prep Date:		Analysis Date:	7/14/2017	SeqNo:	1397181	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	89.4	75.8	123			
Surr: BFB	19		20.00		97.1	52.3	138			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1707611

26-Jul-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 7 12 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399931	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B44318	RunNo:	44318					
Prep Date:		Analysis Date:	7/18/2017	SeqNo:	1399947	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	70	130			
Toluene	21	1.0	20.00	0	105	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		102	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.1	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	10		10.00		103	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1707611

RcptNo: 1

Received By: Anne Thorne

7/13/2017 7:10:00 AM

Completed By: Ashley Gallegos

7/13/2017 10:05:33 AM

Reviewed By:

7/14/17


## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	2.5	Good	Yes			



# Chain-of-Custody Record

Client: **Western Refining Southwest, Inc.**

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: **Kelly.Robinson@wnr.com**

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type) \_\_\_\_\_

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **7-12-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **3.5 - 6.6 = 2.5**

Date Time Matrix Sample Request ID

7-12-17 1120 H<sub>2</sub>O GAC - Lead

↓ ↓ H<sub>2</sub>O GAC - Lead

Container Type and #

5 VOA HCl

1-250-ml Amber Cool

Preservative Type

HEAL No. 1757611

-001

## Analysis Request

BTEX + MTBE + TMBs (8021)

BTEX + MTBE + TPH (Gas only)

TPH 8015B (GRO / DRO / MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals

Anions (F, Cl, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)

8081 Pesticides / 8082 PCBs

8260B (VOA) BTEX, MTBE only

8270 (Semi-VOA)

Air Bubbles (Y or N)

Received by: **Chowat** Date Time 7/12/17 1540

Received by: **Chowat** Date Time 7/13/17 0710

Date: 7-12-17 Time: 1540 Relinquished by: **Chowat**

Date: 7/12/17 Time: 1804 Relinquished by: **Chowat**





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708345

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/3/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708345

Date Reported: 8/18/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:30:00 AM

**Lab ID:** 1708345-001

**Matrix:** AQUEOUS

**Received Date:** 8/3/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/8/2017 1:58:00 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 1:58:00 PM	33233
Surr: DNOP	115	79.2-146		%Rec	1	8/8/2017 1:58:00 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050	P	mg/L	1	8/11/2017 12:28:41 PM	G44930
Surr: BFB	94.0	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Toluene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Ethylbenzene	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Xylenes, Total	ND	1.5	P	µg/L	1	8/11/2017 12:28:41 PM	SL44930
Surr: 1,2-Dichloroethane-d4	116	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: 4-Bromofluorobenzene	93.1	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Dibromofluoromethane	109	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930
Surr: Toluene-d8	104	70-130	P	%Rec	1	8/11/2017 12:28:41 PM	SL44930

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233		SampType: MBLK		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416042		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	0.55		0.5000		110	79.2	146			

Sample ID	1708345-001BMS		SampType: MS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Lead		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1417171		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	121	75.4	162			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	1708345-001BMSD			SampType:	MSD		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	GAC Lead			Batch ID:	33233		RunNo:	44776				
Prep Date:	8/8/2017			Analysis Date:	8/8/2017		SeqNo:	1417172			Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	75.4	162	2.70	20			
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421330	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421331	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 1708345

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.2		10.00		92.2	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120			
Surr: BFB	9.6		10.00		95.7	70	130			

Sample ID	1708345-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421055	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130			P
Surr: BFB	9.3		10.00		93.3	70	130			P

Sample ID	1708345-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC Lead	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421056	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	70	130	1.43	20	P
Surr: BFB	9.5		10.00		94.9	70	130	0	0	P

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative Limit	RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708345

RcptNo: 1

Received By: Anne Thorne

8/3/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:26:38 PM

Reviewed By: ENM/ag

08/07/2017

*Anne Thorne*  
*AG*

### 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



# Chain-of-Custody Record

Client: **Western Refining Southwest, Inc.**

Mailing Address: **#50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **505-632-4166**

email or Fax#: [Kelly.Robinson@wnr.com](mailto:Kelly.Robinson@wnr.com)

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

☐ Other

☒ EDD (Type) \_\_\_\_\_

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: **8-2-2017**

Project #:

**PO#12621258**

Project Manager: **Kelly Robinson**

Sampler: **Michael A. Wicker**

On Ice: ☒ Yes ☐ No

Sample Temperature: **1.1**

Date Time Matrix Sample Request ID

8-2-17 1030 H<sub>2</sub>O GAC - Lead

↓ ↓ H<sub>2</sub>O GAC - Lead

Container Type and #

5 VOA

1-250-ml Amber

Preservative Type

HCl

Cool

HEAL No.

**1708345**

**-001**

**-001**

Date: 8-2-17 Time: 1445

Date: 8/2/17 Time: 1804

Relinquished by: *[Signature]*

Relinquished by: *[Signature]*

Received by: *[Signature]* Date: 8/2/17 Time: 1445

Received by: *[Signature]* Date: 8/16/17 Time: 0710

Remarks:



**HALL ENVIRONMENTAL ANALYSIS LABORATORY**

www.hallenvironmental.com

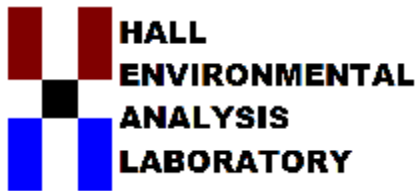
4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

BTX + MTBE + TMBs (8021) BTX + MTBE + TPH (Gas only) TPH 8015B (GRO / DRO / MRO) TPH (Method 418.1) EDB (Method 504.1) PAH (8310 or 8270SIMS) RCRA 8 Metals Anions (F<sup>-</sup>, Cl<sup>-</sup>, NO<sub>3</sub><sup>-</sup>, NO<sub>2</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>) 8081 Pesticides / 8082 PCB's 8260B (VOA) BTEX, MTBE only 8270 (Semi-VOA) Air Bubbles (Y or N)





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

August 18, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 8 2 2017

OrderNo.: 1708346

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/4/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1708346

Date Reported: 8/18/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Inlet

**Project:** GAC Monthly 8 2 2017

**Collection Date:** 8/2/2017 10:40:00 AM

**Lab ID:** 1708346-001

**Matrix:** AQUEOUS

**Received Date:** 8/4/2017 7:10:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.59	0.20		mg/L	1	8/8/2017 3:04:47 PM	33233
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/8/2017 3:04:47 PM	33233
Surr: DNOP	114	79.2-146		%Rec	1	8/8/2017 3:04:47 PM	33233
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	1.7	0.050		mg/L	1	8/11/2017 12:57:39 PM	G44930
Surr: BFB	97.5	70-130		%Rec	1	8/11/2017 12:57:39 PM	G44930
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Toluene	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Ethylbenzene	42	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Xylenes, Total	24	1.5		µg/L	1	8/11/2017 12:57:39 PM	SL44930
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930
Surr: Toluene-d8	104	70-130		%Rec	1	8/11/2017 12:57:39 PM	SL44930

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	LCS-33233		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 33233		RunNo: 44776					
Prep Date:	8/8/2017		Analysis Date: 8/8/2017		SeqNo: 1416039		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	118	72	170			
Surr: DNOP	0.27		0.2500		107	79.2	146			

Sample ID	MB-33233		SampType:	MBLK		TestCode:	EPA Method 8015D: Diesel Range				
Client ID:	PBW		Batch ID:	33233		RunNo:	44776				
Prep Date:	8/8/2017		Analysis Date:	8/8/2017		SeqNo:	1416042		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	0.55		0.5000		110	79.2	146				

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421330</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		92.4	70	130			
Surr: Dibromofluoromethane	11		10.00		110	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421331</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	23	1.0	20.00	0	115	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		109	70	130			
Surr: 4-Bromofluorobenzene	9.1		10.00		91.5	70	130			
Surr: Dibromofluoromethane	11		10.00		107	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID <b>1708346-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421334</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	110	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		89.1	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.6	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID <b>1708346-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>GAC Inlet</b>	Batch ID: <b>SL44930</b>		RunNo: <b>44930</b>							
Prep Date:	Analysis Date: <b>8/11/2017</b>		SeqNo: <b>1421335</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	103	70	130	7.15	20	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

PQL Practical Quantitative Limit

S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Detection Limit

W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	1708346-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC Inlet	Batch ID:	SL44930	RunNo:	44930						
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421335	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	98.0	70	130	3.72	20		
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.1		10.00		90.6	70	130	0	0		
Surr: Dibromofluoromethane	9.3		10.00		93.2	70	130	0	0		
Surr: Toluene-d8	11		10.00		107	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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#: 1708346

18-Aug-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 8 2 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421052	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.2		10.00		92.2	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G44930	RunNo:	44930					
Prep Date:		Analysis Date:	8/11/2017	SeqNo:	1421053	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	105	75.9	120			
Surr: BFB	9.6		10.00		95.7	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 Quantitative 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



# Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1708346

RcptNo: 1

Received By: Anne Thorne

8/4/2017 7:10:00 AM

Completed By: Ashley Gallegos

8/4/2017 4:31:44 PM

Reviewed By:

ENM/ag

08/04/17

*Anne Thorne*  
*AG*

## 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: \_\_\_\_\_  
(<2 or >12 unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

## Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> 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	1.1	Good	Yes			



Client: **Western Refining Southwest, Inc.**

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4166

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

**X** Level 4 (Full Validation)

☐ Other

**X** EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: **GAC - Monthly**

Date: 8 - 2 - 2017

Project #:


PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 16

Date: 8/2/17	Time: 1445	Relinquished by: 	Received by: Christ Waeter	Date 8/2/17	Time 1445	Remarks:
Date: 8/2/17	Time: 1804	Relinquished by: Christ Waeter	Received by: Alan	Date 8/2/17	Time 0710	



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

[www.hallenvironmental.com](http://www.hallenvironmental.com)

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975      Fax 505-345-4107

## Analysis Request

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

September 28, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 9-20-2017

OrderNo.: 1709B22

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 9/21/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001A

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 1:35:29 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 1:35:29 PM	B45921
Surr: 1,2-Dichloroethane-d4	95.0	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: 4-Bromofluorobenzene	100	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Dibromofluoromethane	106	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
Surr: Toluene-d8	99.7	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 1:35:29 PM	D45921
Surr: BFB	94.2	0	70-130		%Rec	1	9/27/2017 1:35:29 PM	D45921

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-001B

**Client Sample ID:** Lag  
**Collection Date:** 9/20/2017 11:55:00 AM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 12:30:40 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 12:30:40 PM	34022
Surr: DNOP	132	0	79.2-146		%Rec	1	9/25/2017 12:30:40 PM	34022

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002A

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Toluene	ND	0.064	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Ethylbenzene	ND	0.093	1.0		µg/L	1	9/27/2017 3:01:25 PM	B45921
Methyl tert-butyl ether (MTBE)	0.54	0.24	1.0	J	µg/L	1	9/27/2017 3:01:25 PM	B45921
Xylenes, Total	ND	0.32	1.5		µg/L	1	9/27/2017 3:01:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	98.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Dibromofluoromethane	107	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
Surr: Toluene-d8	100	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	ND	0.0097	0.050		mg/L	1	9/27/2017 3:01:25 PM	D45921
Surr: BFB	91.9	0	70-130		%Rec	1	9/27/2017 3:01:25 PM	D45921

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: **1709B22**

Date Reported: **9/28/2017**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-002B

**Client Sample ID:** Lead  
**Collection Date:** 9/20/2017 12:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	9/25/2017 1:36:57 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:36:57 PM	34022
Surr: DNOP	133	0	79.2-146		%Rec	1	9/25/2017 1:36:57 PM	34022

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003A

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Toluene	0.092	0.064	1.0	J	µg/L	1	9/27/2017 4:27:25 PM	B45921
Ethylbenzene	1.9	0.093	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	9/27/2017 4:27:25 PM	B45921
Xylenes, Total	2.5	0.32	1.5		µg/L	1	9/27/2017 4:27:25 PM	B45921
Surr: 1,2-Dichloroethane-d4	97.6	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: 4-Bromofluorobenzene	98.8	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Dibromofluoromethane	99.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
Surr: Toluene-d8	97.4	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	B45921
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>	
Gasoline Range Organics (GRO)	0.53	0.0097	0.050		mg/L	1	9/27/2017 4:27:25 PM	D45921
Surr: BFB	92.7	0	70-130		%Rec	1	9/27/2017 4:27:25 PM	D45921

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1709B22**Date Reported: **9/28/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 9-20-2017  
**Lab ID:** 1709B22-003B

**Client Sample ID:** Inlet  
**Collection Date:** 9/20/2017 12:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.21	0.19	0.20		mg/L	1	9/25/2017 1:59:13 PM	34022
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	9/25/2017 1:59:13 PM	34022
Surr: DNOP	136	0	79.2-146		%Rec	1	9/25/2017 1:59:13 PM	34022

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 6 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709B22-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457337		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0	119	75.4	162			
Surr: DNOP	0.33		0.2500		133	79.2	146			

Sample ID	1709B22-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	34022	RunNo:	45861					
Prep Date:	9/22/2017	Analysis Date:	9/25/2017	SeqNo:	1457338	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.1	0.20	2.500	0	125	75.4	162	4.57	20	
Surr: DNOP	0.33		0.2500		133	79.2	146	0	0	

Sample ID	LCS-34022		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 34022		RunNo: 45861					
Prep Date:	9/22/2017		Analysis Date: 9/25/2017		SeqNo: 1457341		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	72	170			
Surr: DNOP	0.31		0.2500		123	79.2	146			

Sample ID	MB-34022	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 34022			RunNo: 45861					
Prep Date:	9/22/2017	Analysis Date: 9/25/2017			SeqNo: 1457342		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	0.61		0.5000		122	79.2	146			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460191	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.0	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		99.6	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460192	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.0	70	130			
Toluene	19	1.0	20.00	0	95.3	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	9.4		10.00		94.0	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.4	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID	1709b22-001a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460194	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.1	70	130			
Toluene	20	1.0	20.00	0	98.0	70	130			
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.3	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	70	130			
Surr: Toluene-d8	10		10.00		99.8	70	130			

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921					
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130	0.597	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 Quantitative 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#: 1709B22

28-Sep-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 9-20-2017

Sample ID	1709b22-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	B45921	RunNo:	45921						
Prep Date:		Analysis Date:	9/27/2017	SeqNo:	1460195	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	96.6	70	130	1.43	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130	0	0		
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0		
Surr: Toluene-d8	10		10.00		99.7	70	130	0	0		

### Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quantitative 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#: 1709B22

28-Sep-17

**Client:** Western Refining Southwest, Inc.

**Project:** GAC Quarterly 9-20-2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460211</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.3		10.00		93.3	70	130			

Sample ID <b>2.5ug gro lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460212</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	75.9	120			
Surr: BFB	9.3		10.00		93.2	70	130			

Sample ID <b>1709b22-002a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460215</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.56	0.050	0.5000	0	111	70	130			
Surr: BFB	9.3		10.00		93.4	70	130			

Sample ID <b>1709b22-002a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>Lead</b>	Batch ID: <b>D45921</b>		RunNo: <b>45921</b>							
Prep Date:	Analysis Date: <b>9/27/2017</b>		SeqNo: <b>1460216</b>		Units: <b>mg/L</b>					
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	70	130	0.723	20	
Surr: BFB	9.2		10.00		91.5	70	130	0	0	

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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  
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: 1709B22

RcptNo: 1

Received By: Anne Thorne

9.21.17 0710 To 9.22.17  
9/20/2017 1:11:00 PM

Anne Thorne

Completed By: Anne Thorne

9/21/2017 11:23:15 AM

Anne Thorne

Reviewed By:

Dennis Lugo 9/21/17

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			









Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

November 07, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 10 31 2017

OrderNo.: 1711008

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/1/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Inlet**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:25:00 AM**Lab ID:** 1711008-001A**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	11/3/2017 5:51:51 PM	G46875
Surr: BFB	91.2	70-130		%Rec	1	11/3/2017 5:51:51 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Ethylbenzene	1.5	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 5:51:51 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Dibromofluoromethane	98.3	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875
Surr: Toluene-d8	104	70-130		%Rec	1	11/3/2017 5:51:51 PM	SL46875

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711008

Date Reported: 11/7/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC - Inlet

**Project:** GAC Monthly 10 31 2017

**Collection Date:** 10/31/2017 10:25:00 AM

**Lab ID:** 1711008-001B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.30	0.20		mg/L	1	11/6/2017 4:12:51 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 4:12:51 PM	34801
Surr: DNOP	117	79.2-146		%Rec	1	11/6/2017 4:12:51 PM	34801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002A**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>DJF</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/3/2017 6:21:13 PM	G46875
Surr: BFB	97.9	70-130		%Rec	1	11/3/2017 6:21:13 PM	G46875
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>
Benzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Toluene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Ethylbenzene	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Xylenes, Total	ND	1.5		µg/L	1	11/3/2017 6:21:13 PM	SL46875
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Dibromofluoromethane	102	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875
Surr: Toluene-d8	103	70-130		%Rec	1	11/3/2017 6:21:13 PM	SL46875

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



**Analytical Report**Lab Order: **1711008**Date Reported: **11/7/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC - Lead**Project:** GAC Monthly 10 31 2017**Collection Date:** 10/31/2017 10:30:00 AM**Lab ID:** 1711008-002B**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/6/2017 5:18:57 PM	34801
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/6/2017 5:18:57 PM	34801
Surr: DNOP	114	79.2-146		%Rec	1	11/6/2017 5:18:57 PM	34801

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-001BMS	SampType:	MS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496769	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.3013	105	75.4	162			
Surr: DNOP	0.26		0.2500		104	79.2	146			

Sample ID	1711008-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC - Inlet	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496770	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.3013	109	75.4	162	3.15	20	
Surr: DNOP	0.27		0.2500		107	79.2	146	0	0	

Sample ID	LCS-34801	SampType:	LCS	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496772	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0	117	72	170			
Surr: DNOP	0.28		0.2500		112	79.2	146			

Sample ID	MB-34801	SampType:	MBLK	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID:	34801	RunNo:	46891					
Prep Date:	11/3/2017	Analysis Date:	11/6/2017	SeqNo:	1496773	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	0.59		0.5000		118	79.2	146			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495601	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	10		10.00		101	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495604	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	99.8	70	130			
Toluene	20	1.0	20.00	0	102	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	10		10.00		104	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	1711008-002a ms	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495607	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.2	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.5	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		103	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID	1711008-002a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495608	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.7	70	130	0.504	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 Quantitative 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#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	1711008-002a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	GAC - Lead	Batch ID:	SL46875	RunNo:	46875						
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495608	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	20	1.0	20.00	0	97.8	70	130	3.60	20		
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130	0	0		
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0		
Surr: Toluene-d8	10		10.00		102	70	130	0	0		

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711008

07-Nov-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 10 31 2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495610	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	9.5		10.00		95.1	70	130			

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495611	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.54	0.050	0.5000	0	108	70	130			
Surr: BFB	9.7		10.00		96.6	70	130			

Sample ID	1711008-001a ms	SampType:	MS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495615	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	93.9	70	130			
Surr: BFB	9.3		10.00		93.1	70	130			

Sample ID	1711008-001a msd	SampType:	MSD	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	GAC - Inlet	Batch ID:	G46875	RunNo:	46875					
Prep Date:		Analysis Date:	11/3/2017	SeqNo:	1495624	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.84	0.050	0.5000	0.3736	92.4	70	130	0.929	20	
Surr: BFB	9.2		10.00		92.3	70	130	0	0	

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1711008

RcptNo: 1

Received By: Anne Thorne 11/1/2017 7:00:00 AM

*Anne Thorne*

Completed By: Isaiah Ortiz 11/1/2017 9:19:35 AM

*IO*

Reviewed By: *AT 11/03/17*

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.6	Good	Yes			



# Chain-of-Custody Record

Client: Western Refining Southwest, Inc.

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4166

email or Fax#: Kelly.Robinson@wnr.com

QA/QC Package:

☐ Standard

☐ Other

☒ EDD (Type)

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name: GAC - Monthly

Date: 10-31-2017

Project #:

PO#12621258

Project Manager: Kelly Robinson

Sampler: Michael A. Wicker

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.6

Date Time Matrix Sample Request ID

10/31/17 1025

↓

1030

↓

GAC - Inlet

GAC - Inlet

GAC - Lead

GAC - Lead

5 VOA

1-250-ml  
Amber

5 VOA

1-250-ml  
Amber

HCl

Cool

HCl

Cool

Container Type and #

Preservative Type

HEAL No.

1711008

-001

-002

10-31-17

Date: 10/31/17

Time: 1552

Date: 10/31/17

Time: 1911

Relinquished by:

Relinquished by:

Received by:

Received by:

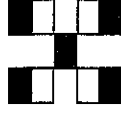
Date: 10/31/17

Date: 11/01/17

Remarks:

## Analysis Request

BTEX + MTBE + TMBs (8021)  
BTEX + MTBE + TPH (Gas only)  
TPH 8015B (GRO / DRO / MRO)  
TPH (Method 418.1)  
EDB (Method 504.1)  
PAH (8310 or 8270SIMS)  
RCRA 8 Metals  
Anions (F, Cl, NO<sub>3</sub>, NO<sub>2</sub>, PO<sub>4</sub>, SO<sub>4</sub>)  
8081 Pesticides / 8082 PCBs  
8260B (VOA) BTEX, MTBE only  
8270 (Semi-VOA)



**HALL ENVIRONMENTAL  
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107





Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

December 06, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Monthly 11-22-2017

OrderNo.: 1711C34

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/23/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001A

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF
Benzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:06:11 PM	SL47452
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: 4-Bromofluorobenzene	92.4	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452
Surr: Toluene-d8	101	70-130		%Rec	1	11/30/2017 11:06:11 PM	SL47452

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



**Analytical Report**Lab Order: **1711C34**Date Reported: **12/6/2017****Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** GAC Inlet**Project:** GAC Monthly 11-22-2017**Collection Date:** 11/22/2017 12:40:00 PM**Lab ID:** 1711C34-001B**Matrix:** Aqueous

<b>Analyses</b>	<b>Result</b>	<b>PQL</b>	<b>Qual</b>	<b>Units</b>	<b>DF</b>	<b>Date Analyzed</b>	<b>Batch ID</b>
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.37	0.050		mg/L	1	12/2/2017 3:43:20 AM	GW4747
Surr: BFB	177	69.3-150	S	%Rec	1	12/2/2017 3:43:20 AM	GW4747

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-001C

**Client Sample ID:** GAC Inlet  
**Collection Date:** 11/22/2017 12:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	0.26	0.20		mg/L	1	11/29/2017 6:40:57 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 6:40:57 PM	35199
Surr: DNOP	121	79.2-146		%Rec	1	11/29/2017 6:40:57 PM	35199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002A

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: DJF	
Benzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Toluene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Ethylbenzene	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Xylenes, Total	ND	1.5		µg/L	1	11/30/2017 11:35:21 PM	SL47452
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452
Surr: Toluene-d8	104	70-130		%Rec	1	11/30/2017 11:35:21 PM	SL47452

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.

**Client Sample ID:** GAC Lead

**Project:** GAC Monthly 11-22-2017

**Collection Date:** 11/22/2017 12:50:00 PM

**Lab ID:** 1711C34-002B

**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	12/2/2017 4:06:43 AM	GW4747
Surr: BFB	88.2	69.3-150		%Rec	1	12/2/2017 4:06:43 AM	GW4747

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1711C34

Date Reported: 12/6/2017

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Monthly 11-22-2017  
**Lab ID:** 1711C34-002C

**Client Sample ID:** GAC Lead  
**Collection Date:** 11/22/2017 12:50:00 PM  
**Matrix:** Aqueous

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	11/29/2017 7:46:50 PM	35199
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	11/29/2017 7:46:50 PM	35199
Surr: DNOP	125	79.2-146		%Rec	1	11/29/2017 7:46:50 PM	35199

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	1711C34-001CMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID: 35199			RunNo: 47389					
Prep Date:	11/28/2017	Analysis Date: 11/29/2017			SeqNo: 1513103		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.0	0.20	2.500	0.2629	108	89.6	145			
Surr: DNOP	0.27		0.2500		108	79.2	146			

Sample ID	1711C34-001CMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	GAC Inlet	Batch ID:	35199	RunNo:	47389					
Prep Date:	11/28/2017	Analysis Date:	11/29/2017	SeqNo:	1513104	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.9	0.20	2.500	0.2629	106	89.6	145	1.74	20	
Surr: DNOP	0.27		0.2500		108	79.2	146	0	0	

Sample ID	LCS-35199		SampType: LCS		TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW		Batch ID: 35199		RunNo: 47389					
Prep Date:	11/28/2017		Analysis Date: 11/29/2017		SeqNo: 1513106		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.20	2.500	0	107	76.5	158			
Surr: DNOP	0.27		0.2500		109	79.2	146			

Sample ID	MB-35199	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35199			RunNo: 47389					
Prep Date:	11/28/2017	Analysis Date: 11/29/2017			SeqNo: 1513107		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	0.56		0.5000		113	79.2	146			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	RB-II	SampType: MBLK			TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID: GW47476			RunNo: 47476					
Prep Date:		Analysis Date: 12/1/2017			SeqNo: 1516078		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		92.1	69.3	150			

Sample ID	2.5UG GRO LCS-II		SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range					
Client ID:	LCSW		Batch ID: GW47476		RunNo: 47476					
Prep Date:			Analysis Date: 12/1/2017		SeqNo: 1516079		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.8	75.8	123			
Surr: BFB	21		20.00		103	69.3	150			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1711C34

06-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Monthly 11-22-2017

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514491	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								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.1	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcsb	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	SL47452	RunNo:	47452					
Prep Date:		Analysis Date:	11/30/2017	SeqNo:	1514492	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.9	70	130			
Toluene	19	1.0	20.00	0	97.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.3	70	130			
Surr: Toluene-d8	9.7		10.00		97.1	70	130			

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
PQL Practical Quantitative 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  
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: 1711C34

RcptNo: 1

Received By: Andy Freeman

11/23/2017 8:35:00 AM

Completed By: Anne Thorne

11/28/2017 9:52:46 AM

Reviewed By: *SRP* 11/28/17

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)  
Adjusted? \_\_\_\_\_  
Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			









Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

December 21, 2017

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX

RE: GAC Quarterly 12 13 2017

OrderNo.: 1712935

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/15/2017 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](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001A

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:02:25 PM	SL4790
Surr: 1,2-Dichloroethane-d4	93.7	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: 4-Bromofluorobenzene	104	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Dibromofluoromethane	99.1	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	12/19/2017 5:02:25 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.026	0.0097	0.050	J	mg/L	1	12/18/2017 12:42:17 PM	R47868
Surr: BFB	103	0	70-130		%Rec	1	12/18/2017 12:42:17 PM	R47868

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-001B

**Client Sample ID:** Lag  
**Collection Date:** 12/13/2017 12:05:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 7:33:30 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 7:33:30 AM	35578
Surr: DNOP	123	0	79.2-146		%Rec	1	12/20/2017 7:33:30 AM	35578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 2 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002A

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>DJF</b>	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Ethylbenzene	ND	0.093	1.0		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Methyl tert-butyl ether (MTBE)	0.32	0.24	1.0	J	µg/L	1	12/19/2017 5:31:35 PM	SL4790
Xylenes, Total	ND	0.32	1.5		µg/L	1	12/19/2017 5:31:35 PM	SL4790
Surr: 1,2-Dichloroethane-d4	90.4	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: 4-Bromofluorobenzene	106	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Dibromofluoromethane	96.3	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	12/19/2017 5:31:35 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>AG</b>	
Gasoline Range Organics (GRO)	0.034	0.0097	0.050	J	mg/L	1	12/18/2017 1:05:17 PM	R47868
Surr: BFB	99.6	0	70-130		%Rec	1	12/18/2017 1:05:17 PM	R47868

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-002B

**Client Sample ID:** Lead  
**Collection Date:** 12/13/2017 12:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	ND	0.19	0.20		mg/L	1	12/20/2017 8:39:35 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 8:39:35 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 8:39:35 AM	35578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	Page 4 of 10
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range	
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	



**Analytical Report**

Lab Order: 1712935

Date Reported: 12/21/2017

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003A

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: DJF	
Benzene	ND	0.062	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Toluene	ND	0.064	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Ethylbenzene	1.3	0.093	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Methyl tert-butyl ether (MTBE)	ND	0.24	1.0		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Xylenes, Total	1.6	0.32	1.5		µg/L	1	12/19/2017 6:00:45 PM	SL4790
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: 4-Bromofluorobenzene	87.9	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Dibromofluoromethane	93.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
Surr: Toluene-d8	96.7	0	70-130		%Rec	1	12/19/2017 6:00:45 PM	SL4790
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: AG	
Gasoline Range Organics (GRO)	0.78	0.0097	0.050		mg/L	1	12/18/2017 1:28:16 PM	R47868
Surr: BFB	94.1	0	70-130		%Rec	1	12/18/2017 1:28:16 PM	R47868

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



**Analytical Report**Lab Order: **1712935**Date Reported: **12/21/2017****Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** GAC Quarterly 12 13 2017  
**Lab ID:** 1712935-003B

**Client Sample ID:** Inlet  
**Collection Date:** 12/13/2017 12:25:00 PM  
**Matrix:** Aqueous

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>TOM</b>	
Diesel Range Organics (DRO)	0.31	0.19	0.20		mg/L	1	12/20/2017 9:01:37 AM	35578
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	12/20/2017 9:01:37 AM	35578
Surr: DNOP	120	0	79.2-146		%Rec	1	12/20/2017 9:01:37 AM	35578

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001BMS	SampType: MS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534630		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	111	89.6	145			
Surr: DNOP	0.29		0.2500		116	79.2	146			

Sample ID	1712935-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015D: Diesel Range					
Client ID:	Lag	Batch ID:	35578	RunNo:	47873					
Prep Date:	12/18/2017	Analysis Date:	12/20/2017	SeqNo:	1534631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	113	89.6	145	1.58	20	
Surr: DNOP	0.29		0.2500		118	79.2	146	0	0	

Sample ID	LCS-35578	SampType: LCS			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	LCSW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534634		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	76.5	158			
Surr: DNOP	0.30		0.2500		119	79.2	146			

Sample ID	MB-35578	SampType: MBLK			TestCode: EPA Method 8015D: Diesel Range					
Client ID:	PBW	Batch ID: 35578			RunNo: 47873					
Prep Date:	12/18/2017	Analysis Date: 12/20/2017			SeqNo: 1534635		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	0.47		0.5000		93.5	79.2	146			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>PBW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533783</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	9.9		10.00		98.5	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Sample ID <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533784</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	97.8	70	130			
Toluene	20	1.0	20.00	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		105	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.2	70	130			
Surr: Toluene-d8	9.8		10.00		97.6	70	130			

Sample ID <b>1712935-001a ms</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533792</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	97.5	70	130			
Toluene	19	1.0	20.00	0	95.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		105	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.3		10.00		93.5	70	130			

Sample ID <b>1712935-001a msd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8260: Volatiles Short List</b>							
Client ID: <b>Lag</b>	Batch ID: <b>SL47903</b>		RunNo: <b>47903</b>							
Prep Date:	Analysis Date: <b>12/19/2017</b>		SeqNo: <b>1533793</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.1	70	130	2.43	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 Quantitative 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#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	1712935-001a msd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List						
Client ID:	Lag	Batch ID:	SL47903	RunNo:	47903						
Prep Date:		Analysis Date:	12/19/2017	SeqNo:	1533793	Units:	µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Toluene	19	1.0	20.00	0	95.6	70	130	0.265	20		
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.7	70	130	0	0		
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0		
Surr: Dibromofluoromethane	9.7		10.00		97.5	70	130	0	0		
Surr: Toluene-d8	9.6		10.00		96.4	70	130	0	0		

### Qualifiers:

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	P Sample pH Not In Range
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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1712935

21-Dec-17

Client: Western Refining Southwest, Inc.

Project: GAC Quarterly 12 13 2017

Sample ID	2.5ug gro lcs	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531812	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	101	70	130			
Surr: BFB	9.8		10.00		97.9	70	130			

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBW	Batch ID:	R47868	RunNo:	47868					
Prep Date:		Analysis Date:	12/18/2017	SeqNo:	1531813	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	10		10.00		101	70	130			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified



## Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 1712935

RcptNo: 1

Received By: Anne Thorne 12/15/2017 7:30:00 AM

Completed By: Michelle Garcia 12/15/2017 11:01:06 AM

Reviewed By: SRE 12/15/17

*Anne Thorne*  
*Michelle Garcia*

### Chain of Custody

1. Custody seals intact on sample bottles? Yes ☒ No ☐ Not Present ☐
2. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐
3. How was the sample delivered? Courier

### Log In

4. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? Yes ☒ No ☐ NA ☐
6. Sample(s) in proper container(s)? Yes ☒ No ☐
7. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
8. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
9. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
10. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
11. Were any sample containers received broken? Yes ☐ No ☒
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes ☒ No ☐
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
14. Is it clear what analyses were requested? Yes ☒ No ☐
15. Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes ☒ No ☐

# of preserved  
bottles checked  
for pH:

(<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
By Whom: \_\_\_\_\_ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person  
Regarding: \_\_\_\_\_  
Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Yes			



